JENSEN®

COLOR VIDEO MONITOR SERVICE MANUAL

MODEL: AVS-3250

SPECIFICATIONS

Power supply	AC 120V, 60 Hz
Power consumption	95W
Picture	25 visual inch rectangular 100° deflection, shadow mask type, precise inline system, magnetic shield, pincushion free
Type number	670DRB22-TC04(T)
Input video signal	Composite video signal, Sync negative
Video signal input and impedance	
Pin Jack (US type) (VIDEO)	1.0 Vp-p, 75-ohm terminated
Pin Jack (US type) (AUX, VIDEO)	1.0 Vp-p, 75-ohm terminated
Pin Jack (US type) (VIDEO-out)	0.4 Vrms, 600 ohm
Pin Jack (US type)	
RCC Remote control connection	3.5 mm phone jack
Resolution (horizontal)	350 lines
Semiconductors	
Integrated circuits	3
Transistors	25
Diodes	33
Cabinet	Front: Plastic molded Cabinet: Wood Rear: Particle board
Dimensions	24-7/8"W x 22-1/2"H x 20-7/16"D
Weight	97 lbs

Note: Specifications are subject to change without notice.

For parts and service information call 800-323-0221 toll free

In Illinois, call 312-671-4760

SERVICING PRECAUTIONS

1. Refer to the Service Precaution on the back page of Schematic diagram.
2. The semiconductors used in the monitor are selected to perform efficiently in a specific circuit function. See the notes at the head of the spare parts list.
3. When a semiconductor is fitted with a heat sink, do not operate the monitor with the heat sink removed.
4. Do not check the high voltage by drawing an arc. Use an H.V. meter or a meter equipped with a suitable high voltage probe. To discharge the CRT first connect a clip lead to an adequate earth braid and then with a 10 kΩ, 2W resistor in series. Connect the other end to the high voltage line of the CRT.
5. Do not bridge electrolytic capacitors when power is applied to the monitor as the resultant surges may damage the semiconductors.
6. Soldering irons for semiconductors should be rated less than 35W and grounded in such a matter that no voltage will be subjected to the device during the soldering operation.
7. When soldering printed circuit boards observe the following precaution.
   a. Use a low-wattage soldering iron (less than 35W)
   b. Keep the soldering iron tip clean and well tinned.
   c. Ensure the suface to be soldered is clean.
   d. To unsolder, heat the component leads until the solder melts. Remove the solder with a solder tip sucker.
      If the first attempt is unsuccessful, allow the area to cool before continuing.
   e. When soldering, heat the component lead first to melt the solder – then hold the soldering iron tip to the component lead and the printed foil until the solder blends and immediately remove the soldering iron tip. Do not overheat.
   f. Inspect the processed area for excess or splashed solder and remove it.

LEAD DRESS

Correct lead dress is essential to maintain the safety and performance of the monitor.
Should it be neccessary to disturb the lead dress for any reason, ensure the leads are returned to the clamps provided.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the monitor have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc.
Replacement parts which have these special safety characteristics are identified on the schematic diagram by shading. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement parts shown in the parts list, may create shock, fire or other hazards. Don't degrade the safety of the monitor through improper servicing.

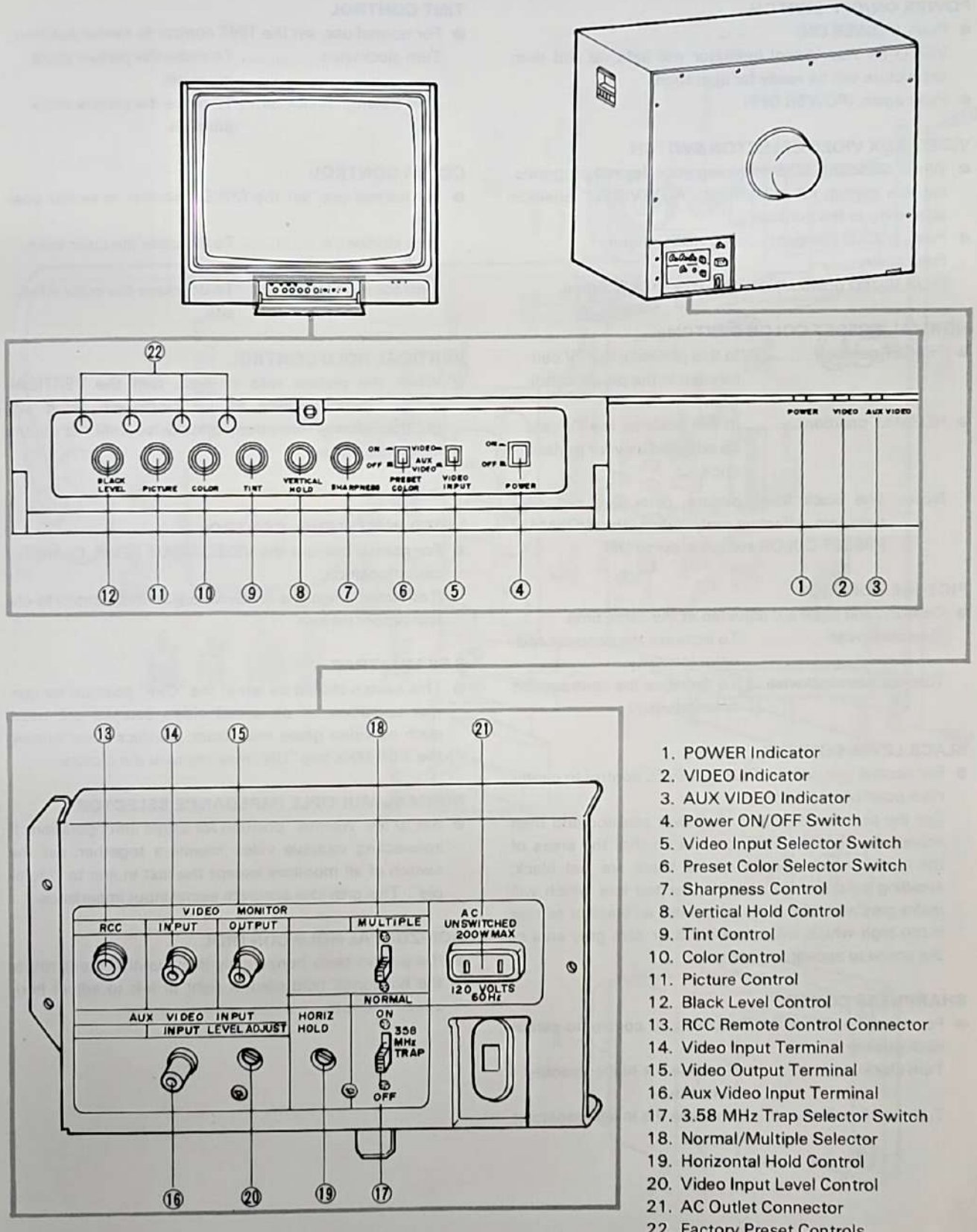
LOCATION OF THE MONITOR

For maximum viewing comfort, place the monitor where a minimum of bright light will fall directly on the screen or into the eyes of the viewer. For proper ventilation, place the monitor in a location where at least 5.9 in. of unobstructed area exists around the back and top. Don't place the monitor in direct sunlight.

HIGH VOLTAGE PROTECTION

This circuit is designed to prevent harmful X-Ray radiation being emitted from the CRT due to excessive high voltage. It also provides additional protection for the monitor should failures occur in the power supply or horizontal output stage.
Should it be needed to defeat the high voltage protection for servicing purpose it is essential the monitor is not released until it is placed back into operation and tested.

LOCATION OF CONTROLS



1. POWER Indicator
2. VIDEO Indicator
3. AUX VIDEO Indicator
4. Power ON/OFF Switch
5. Video Input Selector Switch
6. Preset Color Selector Switch
7. Sharpness Control
8. Vertical Hold Control
9. Tint Control
10. Color Control
11. Picture Control
12. Black Level Control
13. RCC Remote Control Connector
14. Video Input Terminal
15. Video Output Terminal
16. Aux Video Input Terminal
17. 3.58 MHz Trap Selector Switch
18. Normal/Multiple Selector
19. Horizontal Hold Control
20. Video Input Level Control
21. AC Outlet Connector
22. Factory Preset Controls

OPERATION

POWER ON/OFF SWITCH

- Push. (POWER ON)
  VIDEO (or Aux Video) Indicator will light up and then the picture will be ready for operation.
- Push again. (POWER OFF)

VIDEO/AUX VIDEO SELECTOR SWITCH

- When recording or reproducing your desired programs, set this switch to "VIDEO" or "AUX VIDEO" position according to the purpose.
- Push. (VIDEO position) .... For VIDEO Signal.
  Push again.
  (AUX VIDEO position)..... For AUX VIDEO Signal.

NORMAL/PRESET COLOR SWITCH

- PRESET position..... In this position, the TV can be seen in the preset condition.
- NORMAL position ..... In this position, the TV can be adjusted as your preference.

Note: The black level, picture, color and tint controls are effective only when the NORMAL/PRESET COLOR switch is set to OFF.

PICTURE CONTROL

- Contrast and color are adjusted at the same time.
  Turn clockwise ..... To increase the contrast and color intensity.
  Turn counterclockwise.... To decrease the contrast and color intensity.

BLACK LEVEL CONTROL

- For normal use, set the BLACK LEVEL control to center click position.
  Set the picture control to the lower position and then adjust the BLACK LEVEL control so that the areas of the scene which should appear black are just black, avoiding setting the control either too low which will make grey area of the scene appears as black or setting it too high which will couse black or dark grey area of the scene to appear as light grey.

SHARPNESS CONTROL

- For normal use, set the SHARPNESS control to center click position.
  Turn clockwise ..... To make the higher resolution picture.
  Turn counterclockwise.... To make the lower resolution picture.

TINT CONTROL

- For normal use, set the TINT control to center position.
  Turn clockwise ..... To make the picture more greenish.
  Turn counterclockwise.... To make the picture more purplish.

COLOR CONTROL

- For normal use, set the COLOR control to center position.
  Turn clockwise ..... To increase the color intensity.
  Turn counterclockwise.... To decrease the color intensity.

VERTICAL HOLD CONTROL

- When the picture rolls or flips, turn the VERTICAL HOLD control slowly as far clockwise as it will go, then slowly turn counterclockwise until the picture locks into place.

VIDEO INPUT LEVEL CONTROL

- For normal use, set the VIDEO INPUT LEVEL Control to center position.
  If difference signal is received, adjust this control to obtain proper picture.

3.58 MHz TRAP

- This switch should be left in the "OFF" position for normal operation. If abnormal video sources are used, such as video game with color graphics, then turning the 3.58 MHz trap "ON" may improve the picture.

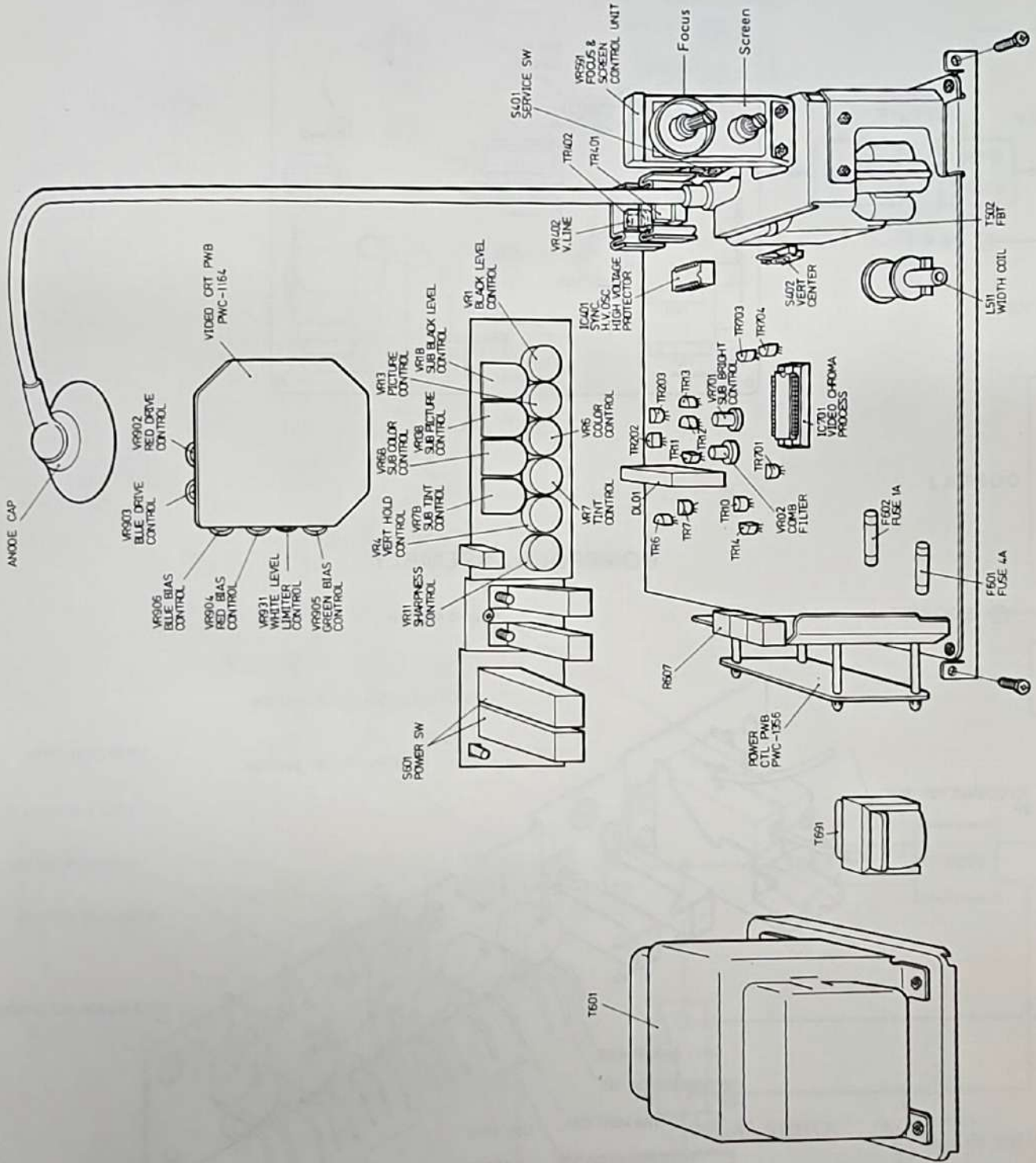
NORMAL/MULTIPLE IMPEDANCE SELECTOR

- Set to the "Normal" position for single unit operation. If connecting multiple video monitors together, set the switch of all monitors except the last in line to "Multiple". This provides accurate signal input impedance.

HORIZONTAL HOLD CONTROL

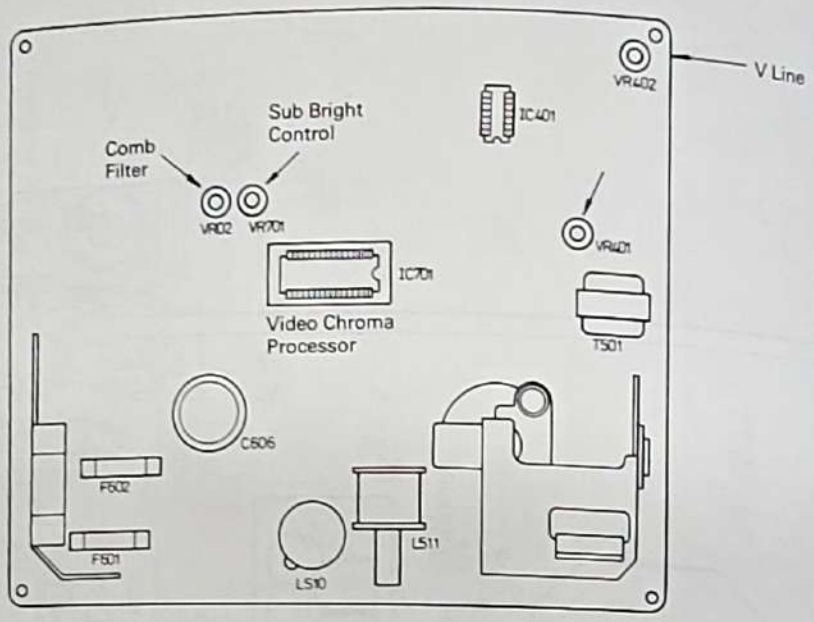
- If a picture tears horizontally (has slanting bars), rotate the horizontal hold control right or left to adjust horizontal oscillator.

LOCATION OF MAIN PARTS

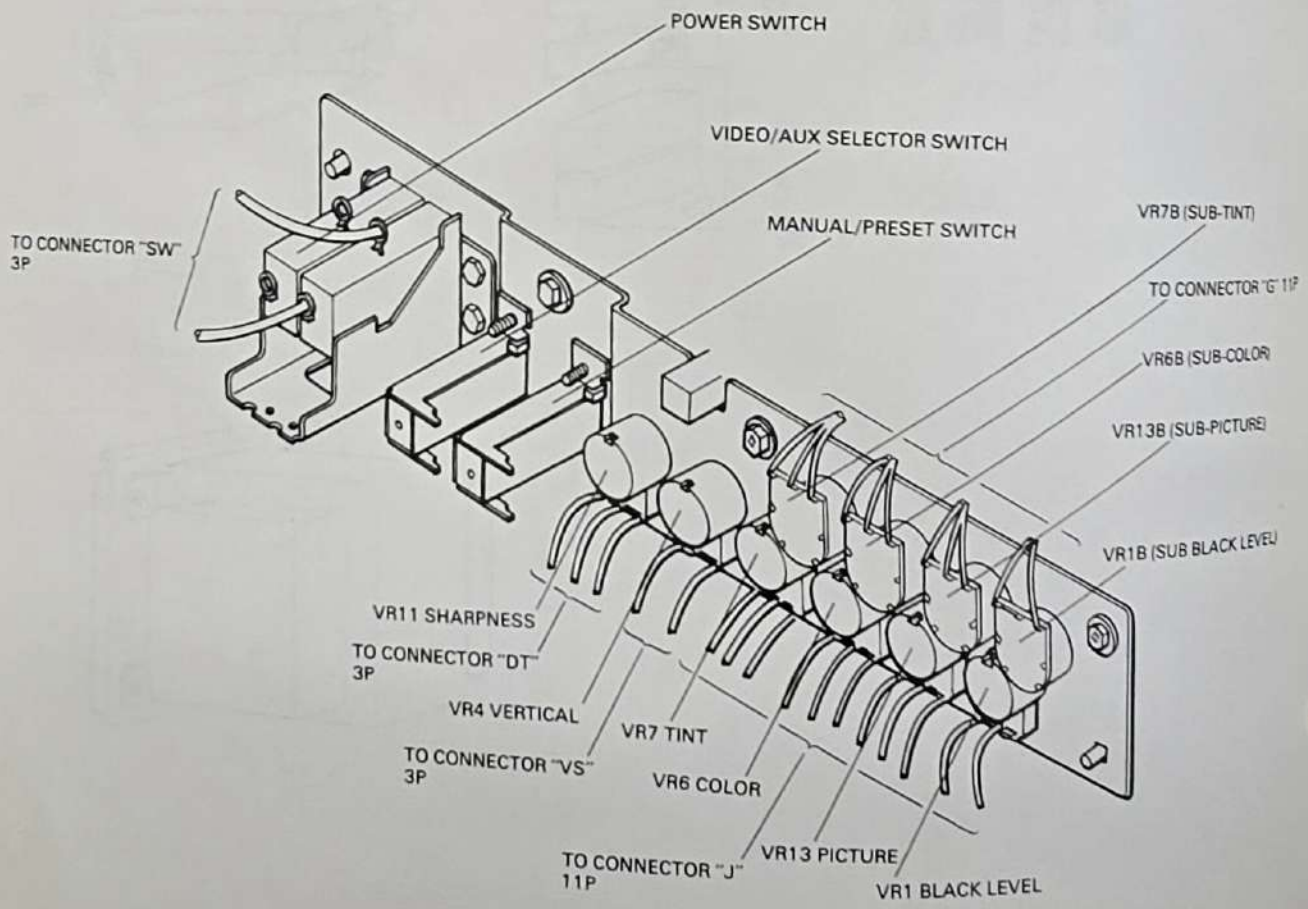


LAYOUT OF CONTROLS

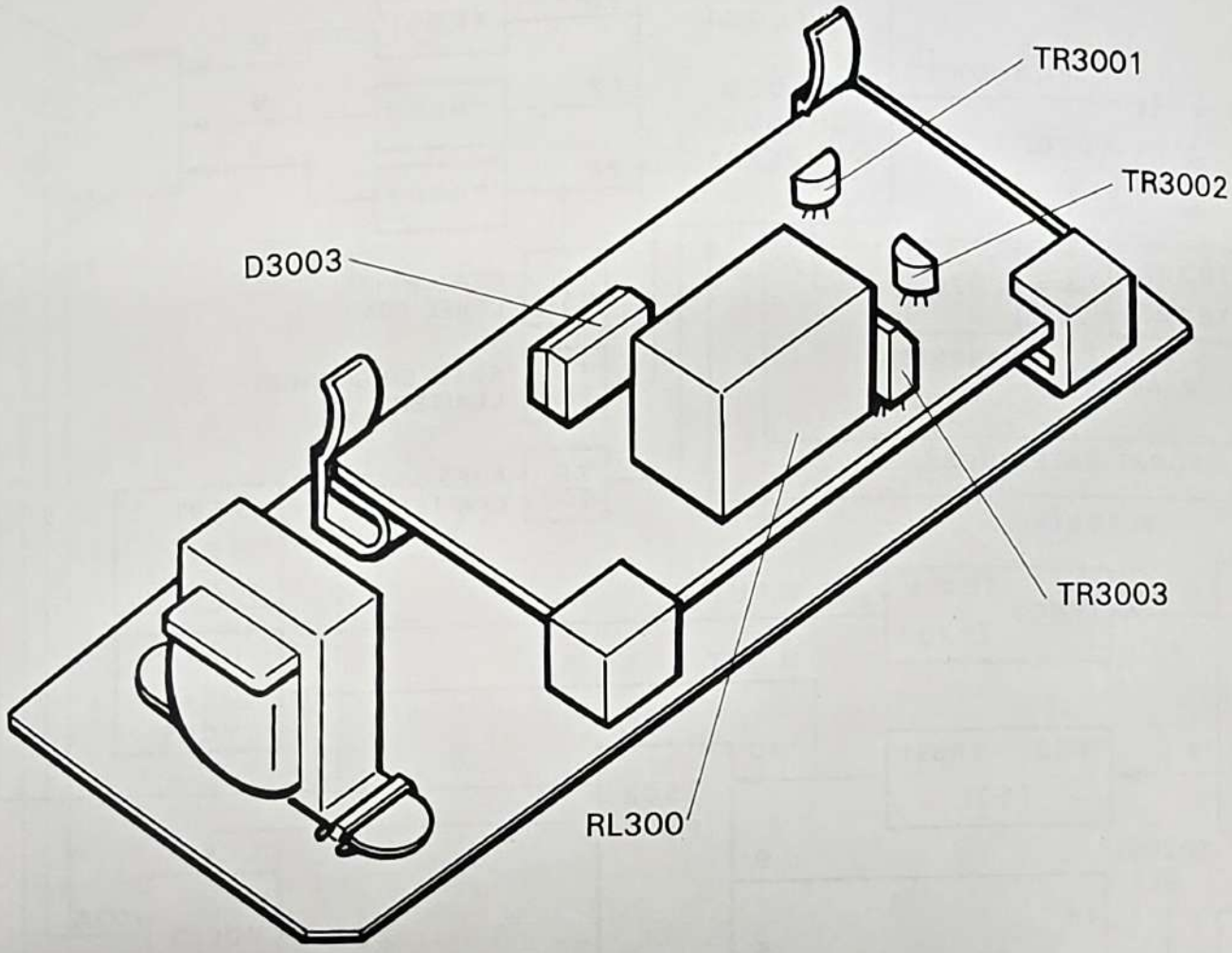
MAIN PWB



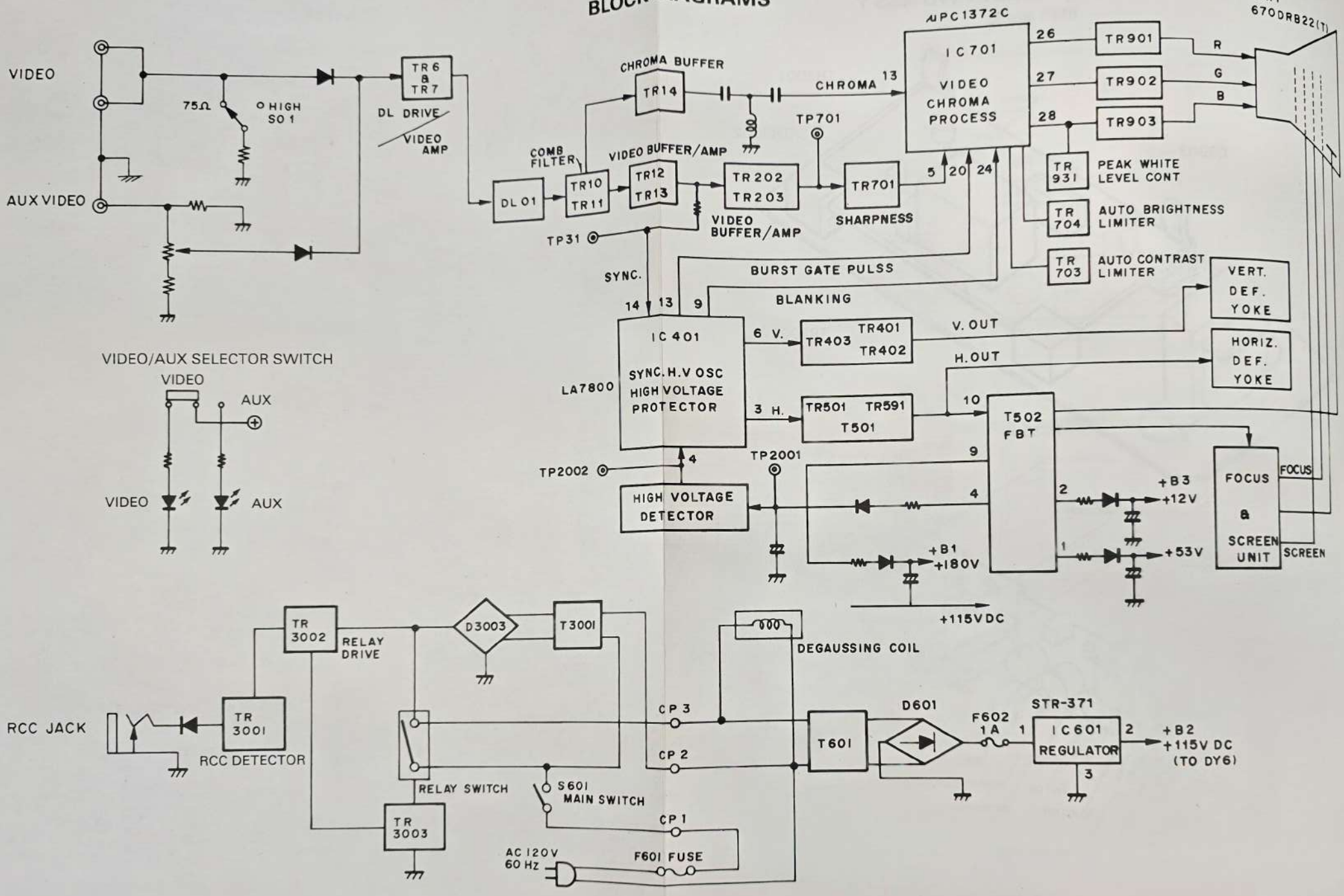
CONTROLS ASSEMBLY



RCC POWER CONTROL PWB ASS'Y



BLOCK DIAGRAMS



SERVICE ADJUSTMENTS

CHECKING +B2 (115V) VOLTAGE BUS

1. Receive monoscope signal (or equivalent signal) and turn the Black level control and picture controls to their fully clockwise.
2. Connect an Voltmeter (200V) between "DW2" and ground.
3. Confirm the +B2 voltage should be 115V ± 1 VDC.

CHECKING HIGH VOLTAGE

1. Supply test pattern and check that the voltage at pin 2 of regulator IC601 (+B2) is 115 ± 1V DC.
2. When Black level control and Picture control are at their minimum position, the high voltage should be 27.8 kV (± 1.5 kV).

RECOMMENDATION FOR CHECKING

High voltage protection (Total inspection)

A. This test performed without line voltage to the monitor.
   1. Connect DC power supply, positive lead to TP2001 and negative lead to Ground.
      Adjust DC voltage for 23.5V.
   2. Measure DC voltage at TP2002. Should be no more than 0.25V ± 0.05V.

B. This test performed with variac transformer
   1. Set variac transformer for 0 output.
   2. Connect monitor to the variac output.
   3. Supply test pattern to video input and Black level control and Picture control in minimum position.
   4. Color Preset switch ⑥ in OFF position.
   5. Turn on the Power switch on the monitor and using the variac, raise line voltage gradually up to 130 VAC.
   6. Slowly decrease line voltage till picture disappears. Continue with decreasing line voltage until set turns off.
      Line voltage on voltmeter should be between 40 to 30 VAC.
   7. Turn Power switch off on the monitor.
   8. Readjust line voltage on variac transformer for 120 VAC.
   9. Wait 10 or more seconds and turn on the Power switch on the monitor and check for normal operation.

HORIZONTAL SYNCHRONIZATION, CENTERING AND WIDTH ADJUSTMENT

1. Supply a test pattern, and connect a 100 μF/16V capacitor between TP31 and ground, (– to TP31, + to ground).
2. Adjust the Horizontal Hold control (VR501) to obtain a solid frame.
3. Remove the capacitor. Turn the Power switch ON and OFF, and make sure that this operation does not affect the synchronization.
4. Adjust the Horizontal Centering control tip so that the center of the picture is in the center of the screen.
5. If the horizontal frame is off center to the right, reconnect the Horizontal Centering tip to the "L" position.
   If it is out of position to the left, make re-connection to the "R" position.
6. Adjust the Horizontal Width inductor (L511) for proper horizontal width.

VERTICAL CENTERING, HEIGHT AND BIAS ADJUSTMENT

1. If the vertical postion is upward of center, set the Vertical Centering switch (S402) to DOWN. If it is downward, set the switch to UP.
2. Turn the Vertical Height control (VR401) until the proper height.
3. Connect a voltmeter between DY3 and ground, and adjust the Vertical Bias control (VR402) to obtain 32V.

SUB BRIGHTNESS ADJUSTMENT

1. Supply an gray scale or equivalent pattern.
2. Set the Black Level control (VR1) to detent and Sub Brightness control (VR701) fully counterclockwise.
3. Adjust VR701 so that the black portion of the picture is black.

FOCUS ADJUSTMENT

1. Supply a test pattern.
2. Turn the Picture control (VR13) and Black Level control (VR1) fully clockwise.
3. Turn the focus control (VR591) so that the middle steps of the contrast chart in the test pattern are best focused.

GRAY SCALE ADJUSTMENT

Note: Prior to adjustment, warm up the monitor for at least 12 minutes.

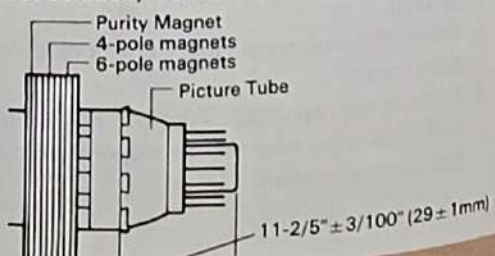
1. Supply a white raster signal, and set the Black Level to its detent and Picture controls to its maximum positions.
2. Make sure that the all preset controls to their center (detent) position.
3. Set all Bias controls (VR904 ,VR905 and VR906) and Drive controls (VR902, VR903) to their mechanical center positions.
4. Turn the CRT Screen control fully counterclockwise.
5. Set the Service switch (S401) to SERVICE position.
6. Adjust the Sub Brightness control (VR701) until the voltage between the ground and GK terminal on the CRT becomes DC 160V.
7. Turn the CRT Screen control clockwise until the first colored horizontal line is barely visible.
8. Turn fully counterclockwise the Bias control associated to the color which is now visible. .
9. Turn the CRT Screen control until a barely visible horizontal line in another color appears on the screen. Turn the associated Bias control fully counterclockwise.
10. Again, adjust screen control to produce a barely visible horizontal line in the remaining color. However, leave the associtatd Bias control at its center.
11. Turn the other two Bias controls clockwise to obtain a white horizontal line or until all these colored lines are equal in intensity.
12. Reset the Service switch (S401) to NORMAL position.
13. Turn the Color control to its minimum position, and turn the Black Level control to to its maximum position. Next, adjust the Red and Blue Drive controls (VR902 and VR903) to obtain white.
14. Vary the setting of the Black Level, and observe the white tracking. If the white at or near the cut-off shows deviation, perform again the adjustment procedures outlined in above steps 3 to 11.
15. Check for a gray raster at both the high and low black levels and picture levels.

PURITY AND CONVERGENCE

The monitor uses a Precision In-Line System self convergence cathode ray tube. Purity and convergence are set in the factory and need not normally be re-adjusted.
Any purity and/or convergence error encountered should first be treated by degaussing throughly. If purity and/or convergence require adjustment the following procedures should be closely adhered to. Read through fully prior to commencing the adjustment to become familiar with the procedure.

PURITY

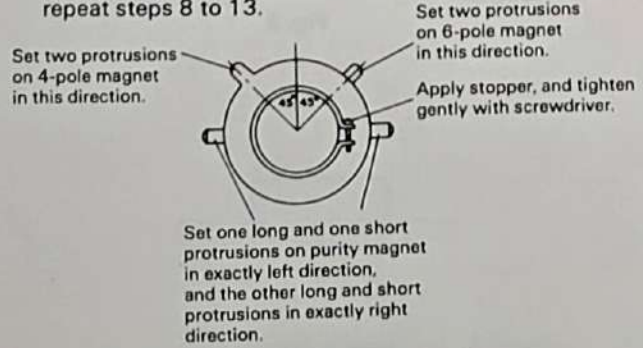
1. Pre-heat the monitor for at least 10 minutes.
2. Degauss the entire screen.
3. The purity rings on the static magnet assembly are indicated by a "P" stamped on the tabs. Carefully remove the locking paint with a utility knife and rotate the purity rings until they are positioned horizontally with the long and short tabs adjacent to each other.
4. Supply a crosshatch pattern and check the static convergence.
   If the error is great touch up the static convergence as described in the section headed "Static Convergence".
5. Loosen the yoke retaining clamp and remove the adhesive tape from the wedges. With a long bladed utility knife cut the adhesive between the CRT bell and the wedges. Slide the yoke back as far as it will travel (see note 12).
   Remove the wedges completely and clean the dried adhesive from the wedges completely and clean the dried adhesive from the CRT and the wedges. Clean the area with and alcohol dampeded cloth.
6. Feed a white raster signal and turn the Green Bias control (VR905) fully counterclockwise to provide a Magenta raster.
7. Spread the purity rings by rotating them in opposite directions, maintaining each tab at the same angle to the horizontal, to position the Vertical Magenta stripe in the center of the screen.
8. Slide the yoke forwards to obtain the best Magenta purity, tighten the yoke clamper screw just enough to maintain that setting. Temporarily insert a wedge between the top of the yoke and bell of the CRT to hold the yoke in the horizontal plane.
9. Set the Green Bias control (VR905) to the center position and check the white raster.
10. Set the Vertical Centering switch (S402) to its mechanical center and the Service switch (S401) to Service position to collapse the raster. Check for tilt and if necessary rotate the yoke for a horizontal trace using the reference points at either side of the screen. The trace should be within 3/16" of the geometical center of the screen. If outside this tolerance rotate both purity rings together to bring the within tolerance.
11. Reset the Service switch to provide full frame raster and check the purity. If necessary repeat steps 6 to 11. Tighten the yoke clamper.
12. **Note:** In some instances it may be found that the purity is easier to adjust by sliding the yoke forward at the commencement of the purity adjustment although the magenta vertical stripe is not so easily defined in this case.



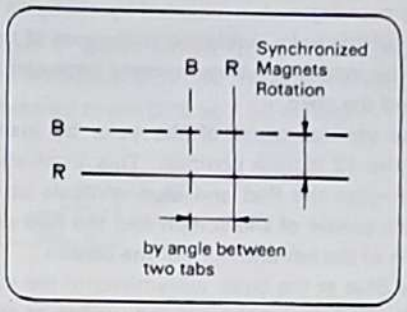
STATIC CONVERGENCE

The static convergence magnet is stamped with a "4" on the tabs if it is 4-pole type, or with a "6" if it is 6-pole type. Remove the lock paint with a utility knife before moving the magnet.

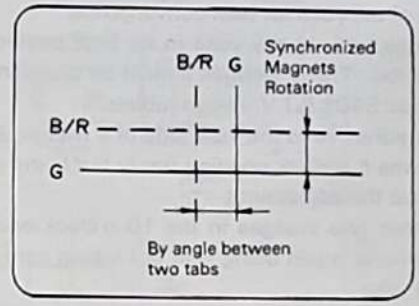
1. Supply a crosshatch pattern, adjust the Black Level and contrast controls until the pattern is clearly observed.
2. Turn the Green Bias control (VR905) fully counterclockwise. Leave the Red and Blue Bias controls at their center position.
3. Loosen the tightening screw of the deflection yoke, and pull the deflection yoke fully rearward.
4. Move the two protrusions on the purity magnet symmetrically from their horizontal positions until the vertical bar in magenta is centered on the screen.
5. Next, push the deflection yoke fully toward the front, and gradually pull it rearward until the entire screen becomes evenly magenta first. Tighten the screw of the deflection yoke to fix it at this position.
6. Turn the Green Bias control (VR905) to the center position, and make sure that the entire screen is evenly white. If this condition is not obtained, repeat the above adjustment.
7. Adjust the Black Level control (VR1) and Picture control (VR13) to somewhat lower the tone of black.
8. Turn the Green Bias control (VR905) fully counterclockwise.
9. Symmetrically open the two protrusions on the 4-pole magnet until the red and blue vertical lines match at the center. Note that the two protrusions must be moved simultaneously.
10. Turn the two protrusions on the 4-pole magnet (with the angle between them kept as adjusted in step 9) until the red and blue horizontal lines match at the center.
11. Turn the Green Bias control (VR905) to the center position to present the three primary colors.
12. Symmetrically open the two protrusion on the 6-pole magnet until the green vertical line coincides with the central red & blue line.
13. Turn the two protrusions on the 6-pole magnet (with the angle between them kept constant) until the green line coincides with the horizontal red & blue line at the center.
14. Make sure that red, blue, and green are properly mixed into white at the center. If this condition is not met, repeat steps 8 to 13.


Set two protrusions on 4-pole magnet in this direction.
Set two protrusions on 6-pole magnet in this direction.
Apply stopper, and tighten gently with screwdriver.
Set one long and one short protrusions on purity magnet in exactly left direction, and the other long and short protrusions in exactly right direction.

Magnet Tabs Position Viewed from Rear

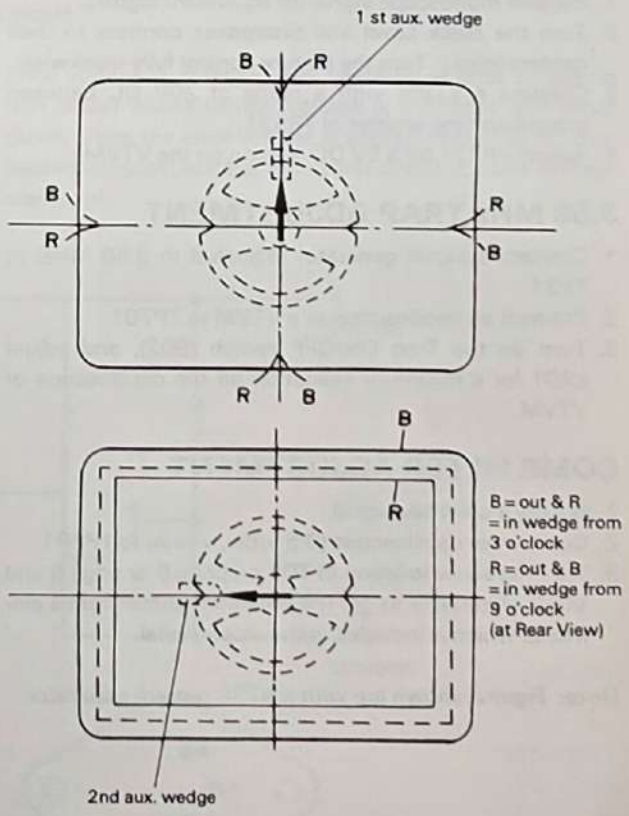


4-Pole Magnets for R & B



6-Pole Magnets for B/R & G

Screen Center Static convergence Adjustment



Dynamic Convergence Adjustment

DYNAMIC CONVERGENCE

The dynamic convergence is adjusted by changing the angle of the deflection yoke in relation to the axis of the CRT. This is done by inserting rubber wedges between the bell of the CRT and the yoke.

1. Adjust the vertical plane of the yoke by inserting a wedge at the 12 o'clock position. This angle should be set to converge the Red and Blue verticals at the top and bottom center of the screen and the Red and Blue horizontals at the left and right of the screen.
2. If now the Blue at the outer extremities of the screen is outside the Red, insert the second wedge at the 3 o'clock position (when viewed from the rear) and adjust the angle of the yoke for best convergence.
3. The wedges to hold the yoke in its final position will now be fitted. These wedges should be glued in place with Silastic S401 R.T.V. silicon rubber.
4. Apply the adhesive to the yoke side of a wedge. Fit this wedge in the 6 o'clock position firmly but being careful not to upset the adjustment.
5. Fit the other two wedges in the 10 o'clock and 2 o'clock positions, again being firm but taking care not to move the yoke.
6. Lift the outer end of each wedge and apply the adhesive between the wedge and the CRT. Tape the wedges to the CRT with Scotch 361 tape.

WHITE LEVEL LIMITER ADJUSTMENT

1. Receive monoscope signal (or equivalent signal).
2. Turn the Black Level and Sharpness controls to their centers (click). Turn the Picture control fully clockwise.
3. Connect a VTVM with a range of 20V DC between ground and the emitter of TR931.
4. Adjust VR931 for a 5V DC reading on the VTVM.

3.58 MHz TRAP ADJUSTMENT

1. Connect a signal generator (adjusted to 3.58 MHz) to TP31.
2. Connect an oscilloscope or a VTVM to TP701.
3. Turn on the Trap ON/OFF switch (S02), and adjust L201 for a minimum indication on the oscilloscope or VTVM.

COMB FILTER ADJUSTMENT

1. Supply a color bar signal.
2. Connect an oscilloscope (0.5 v/div, V rate) to TP701.
3. Turn the show location of T01 on page 5 or page 6 and VR02 alternately to get the minimum chrominance elements which is included in the video signal.

Note: Figures shown are with a NTSC pattern generator.

ADJUSTING PRESET CONTROL

The PRESET COLOR switch should be on.

Tint control

1. Supply a color bar pattern signal and fully turn black level, picture and color controls clockwise.
2. Connect a capacitor of 100 μF/16V between TP701 and V2 (ground) of main PWB to eliminate luminance signal component.
3. Connect an oscilloscope to Blue output terminal of the main PWB and adjust tint control so that the step waveform shown in Fig. 1 is obtained.

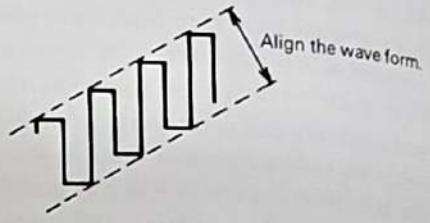


Fig. 1

Color

1. After adjusting the tint control, remove the capacitor between TP701 and V2 (ground).
2. Adjust the color control so that the waveform at Blue output is as shown in Fig. 2.

Fig. 2

Picture control

1. Turn the picture control to the 3 o'clock position.

Black level control

1. Receive a color bar pattern signal and turn the picture control clockwise.
2. Adjust the black level control so that the lower part of the received color bar pattern just becomes black.

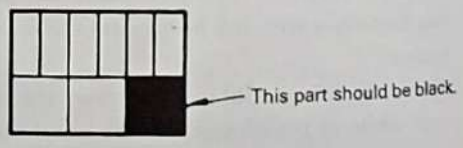


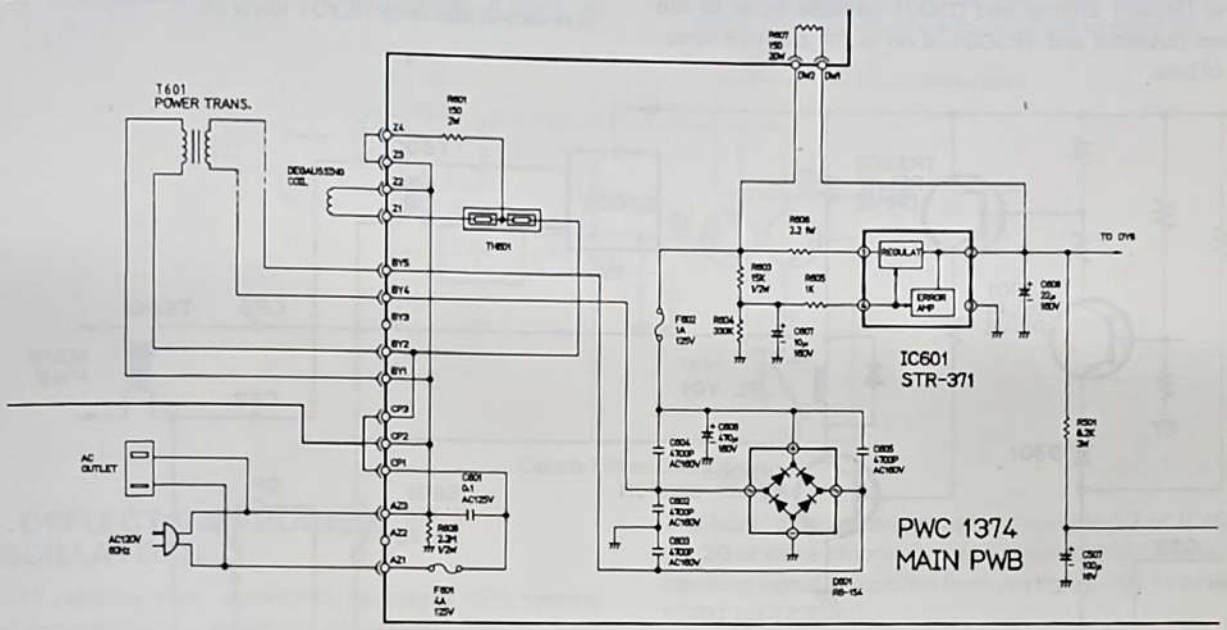
Fig. 3

SIMPLIFIED CIRCUIT DESCRIPTION

1. POWER SUPPLY

The input voltage of AC120V is applied to primary side of power transformer T601 and the outputs at the secondary side of T601 are rectified by diode bridge consisting of D601.

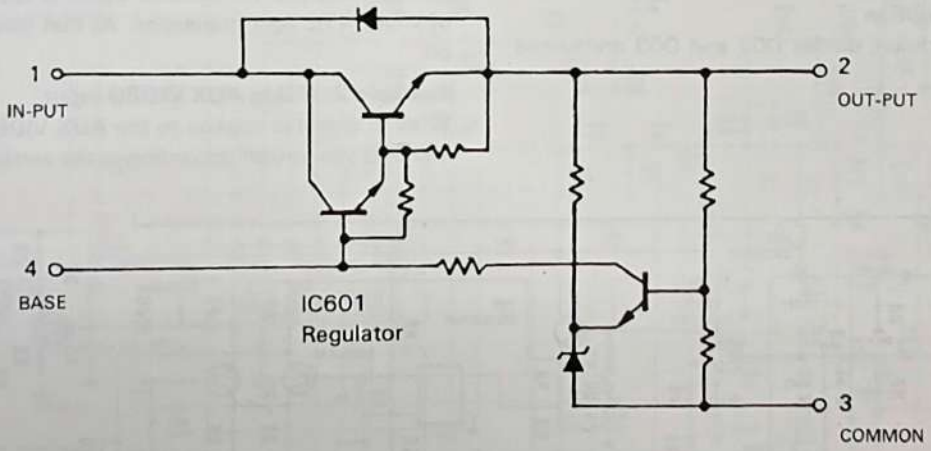
The output of D601 (about DC130V) is converted into a constant voltage of DC115V by regulator IC601. This voltage is applied to pin DY6 as a B2 voltage.

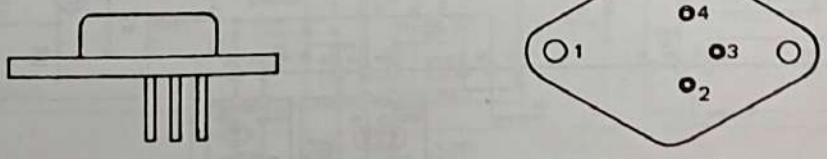


Regulator Circuit

Input voltage of 120V AC is applied to full wave rectifier D601 and then output voltage of approx. 130V is applied to pin 1 of IC601 through F602 and R606.
Basic operations of the circuit are similar to those of conventional constant voltage regulated power supply circuit.

Error voltage is detected and amplified at error amplification circuit where emitter voltage is stabilized with zener diode. Then the error voltage is applied to Darlington connected constant voltage regulation circuit to make voltage stabilized.





1. Input (Casing) 2. Output 3. Common (Ground) 4. Base

2. RCC CONTROL

RCC Control Circuit (Remote Control Connection)

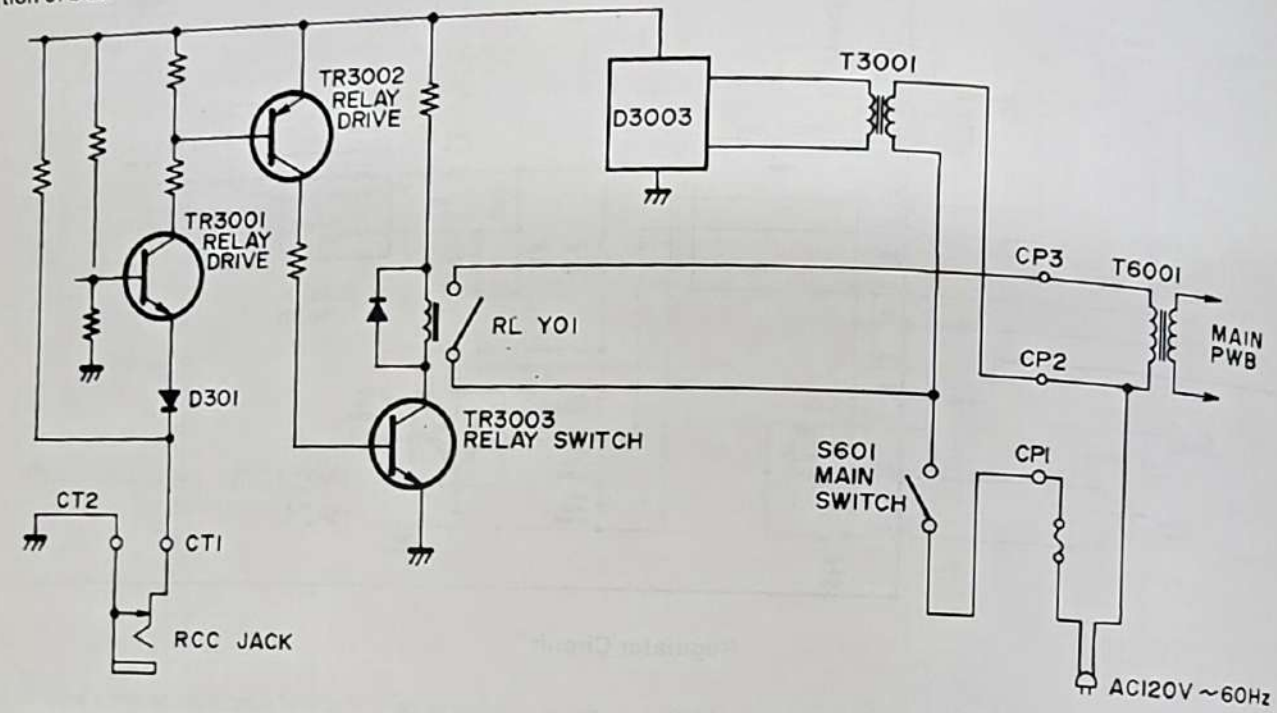
The switching circuit automatically controls (ON/OFF) the power supply circuit together with the power supply circuit of the external units.

Circuit Description

When a plug is not connected to the RCC jack, the levels of the TR3001 emitter and D3001 cathode equal to the ground potential and TR3001 is on in the positive direction of bias.

When TR3001 is on, relay drive transistor TR3002 turns on, a power of about 10V is generated at the collector and relay switch transistor TR3003 turns on to activate relay RLY01. At the same time, the primary side of main transformer T601 is closed circuited and a power is supplied to the main circuit.

When the terminal CT2 and CT1 of the RCC jack are opened (plug is connected), the operation of each transitor is reversed and relay RLY01 turns off.



3. VIDEO INPUT CIRCUIT

This circuit switches the input signal using diodes D02 and D03 and selects the external input signal.

Operational Description

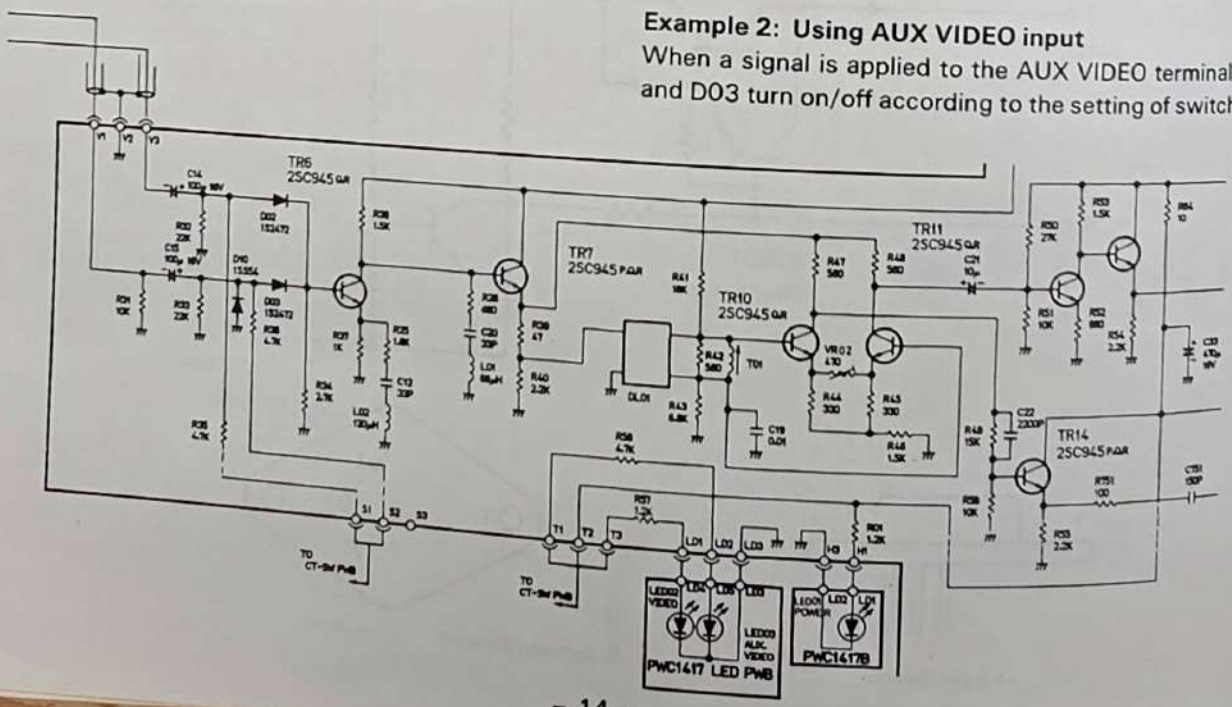
In the normal operation, diodes D02 and D03 are turned off.

Example 1: Using VIDEO input

When the VIDEO switch in the front panel is pressed, a power of 12V is applied to S2 terminal of main PWB, D03 turns on and the V1 terminal signal is applied to the base of VIDEO PRE AMP transistor. At that time, D02 is turned off.

Example 2: Using AUX VIDEO input

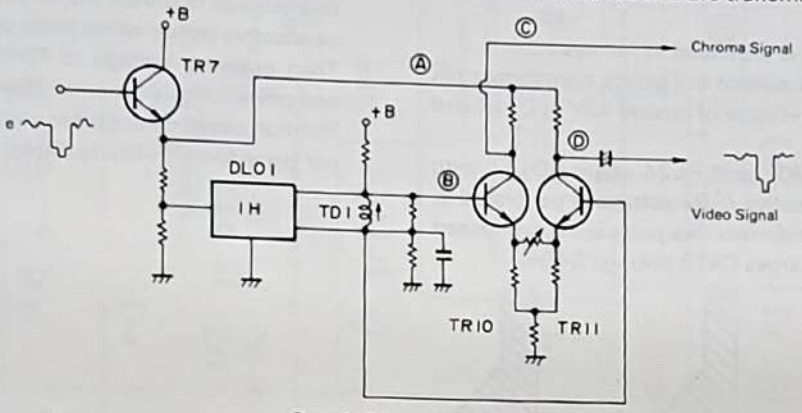
When a signal is applied to the AUX VIDEO terminal D02 and D03 turn on/off according to the setting of switch.



4. COMB FILTER CIRCUIT

A positive picture signal applied to the base of TR7 is separated into the chroma and video signals by the comb filter circuit.

1. Point Ⓑ waveform is delayed 1H before point Ⓐ waveform.
2. Chroma signal present waveform are opposite in phase to 1H preceding waveform. Consequently, if point Ⓐ waveform is e, it will be −e at point Ⓑ. At point Ⓒ, e will be obtain and since this is in same phase as in point Ⓐ, it can be obtained directly as output. At this time it will become e + (−e) at point Ⓓ to cancel out. e is composite video signal.
3. Only the chroma band signals shifted by 1H pass through 1H DL, no video signals passing through. Thus, the video signals pass from point Ⓐ through collector resistance and are transmitted to point Ⓓ.



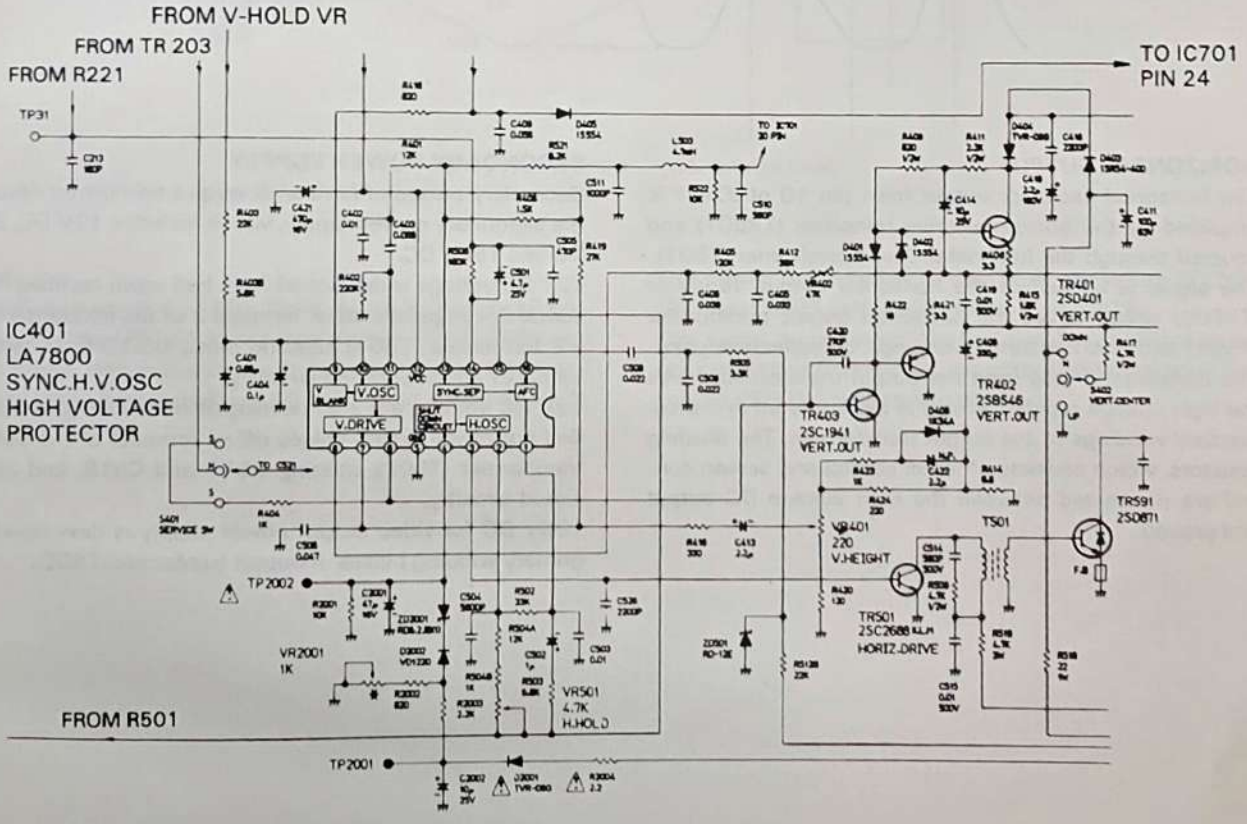
Comb Filter Circuit

5. DEFLECTION PROCESS OSCILLATORS

IC401 provides sync. separation, horizontal AFC, vertical and horizontal scan waveform generation, vertical blank and high voltage protection.

The video signal passes through TP31 input to pin 14 of IC401.

The burst gate pulse is supplied from pin 13 of IC401 to pin 20 of video chroma process circuit IC701. The vertical blanking signal is supplied from pin 9 of IC401 to pin 24 of IC701 via TP703.



VERTICAL OUTPUT

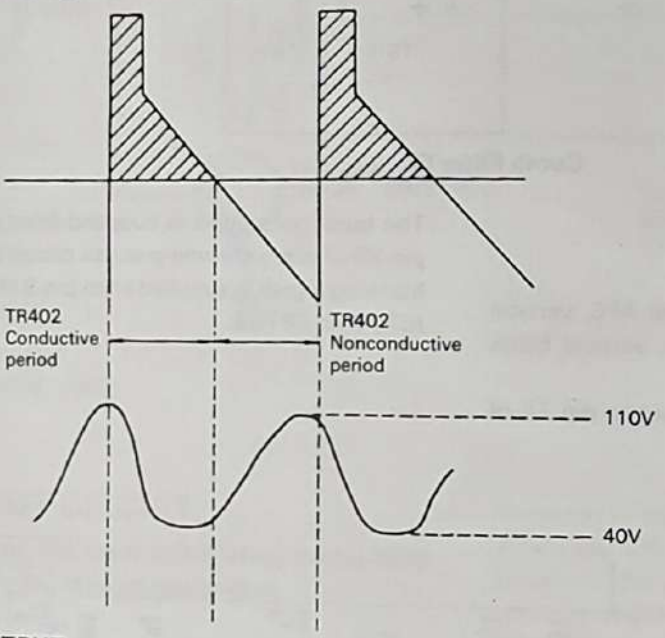
Vertical output circuit is a SEPP (Single Ended Push-Pull) circuit and it is operated by a DC voltage insert "supplied by A" rectified flyback pulse.

In order to minimize power consumption of the vertical output transistor, a unique circuit design is utilized. With special circuits D403, D404 and D501 DC power supply or collector voltage of TR402 is around 110V at the first half of sweeping but it is reduced to around 43V at the latter half of sweeping.

Operation of the circuit is described as follows.

1. D501 rectifies pulse current at Flyback transformer pin 1 and generates DC voltage of around 43V at C518 and C411.
2. During scanning D403 and R524 charge C417 with current I_2. When positive pulse voltage is generated at pin 5 of Flyback transformer this pulse is superimposed on 43V DC and it charges C418 through D404.
3. The power supply circuit of 70V, which is to be supperimposed on 40V, is designed with small value of C416 to get rather poor regulation. Therefore, once current is applied on TR402 voltage between both terminals of C413 drops from 110V down to 40V.
4. In other words, current passes through TR402 during first half of vertical sweeping but TR402 becomes nonconductive at the latter half of sweeping. During the nonconductive period C418 is charged up to 110V and this voltage operates the circuit at the first half or the conductive period when pulse current passes through.
5. Then collector voltage of TR402 drops down to 40V and power consumption of TR402 is reduced.

Relation between collector voltage wave form and output wave form TR402 is shown in Fig. 4.



Input wave form of TR402

Collector voltage of TR402

HORIZONTAL OUTPUT

The horizontal oscillator output from pin 10 of IC401 is amplified by the horizontal drive transistor (TR501) and coupled through the horizontal drive transformer (T501). The signal is applied to the horizontal output transistor (TR502) which drives the horizontal output transformer (T502) and the horizontal windings of deflection yoke. The horizontal pulses from the output transformer drives the high voltage rectifier, which is incorporated in the secondary windings of the output transformer. The dividing resistors, which consists of focus control and screen control are connected between the high voltage DC output and ground.

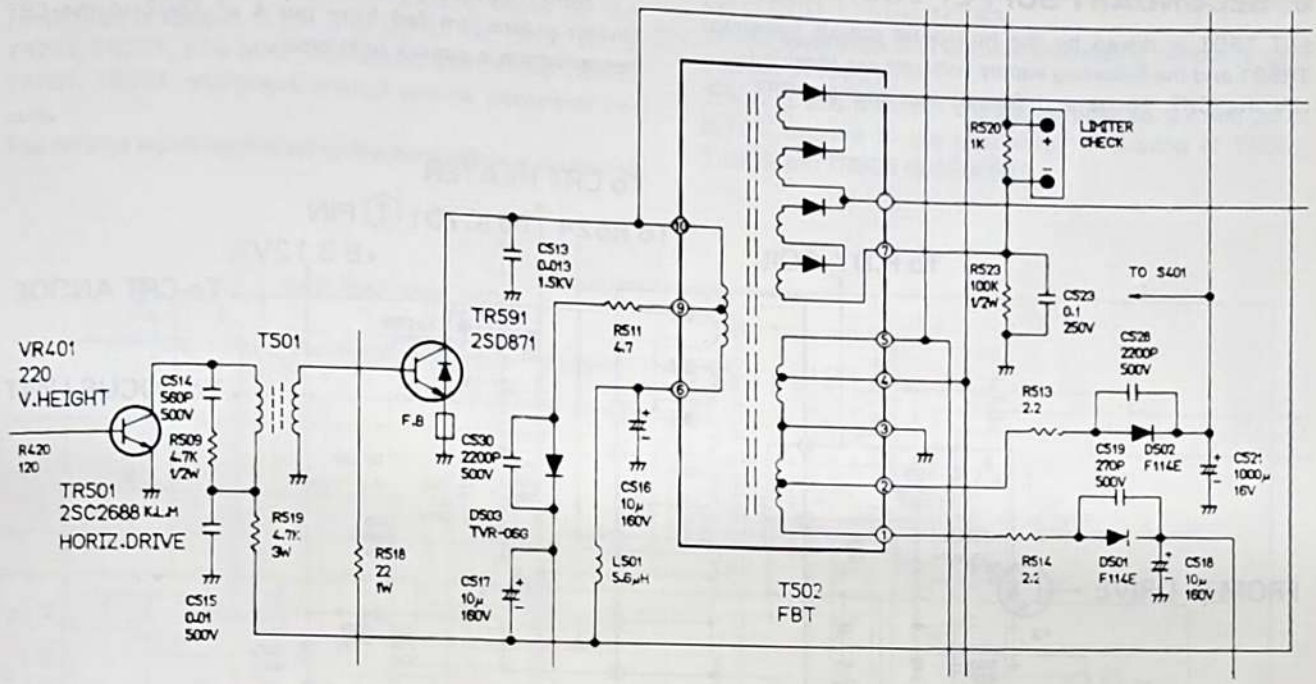
SECONDARY POWER SUPPLY

Secondary pulses of horizontal output tranformer develop the secondary power supply, which includes 12V DC, 53V DC and 180V DC.

12V DC voltage is developed from half wave rectified horizontal driven pulses off of terminal 2 of the horizontal output tranformer (T502), utilizing diode D502, filter capacitor C521 and associated circuitry.

53V DC voltage are also developed from half wave rectified horizontal driven pulses off of terminal of the output transformer (T502), utilizing D501 and C518, and associated circuitry.

180V DC for video output power supply is developed by primary winding pulses of output tranformer (T502).

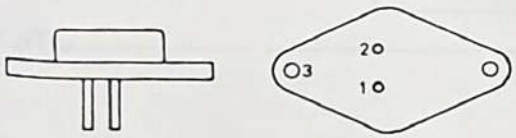


HORIZONTAL OUTPUT TRANSISTOR 2SD871

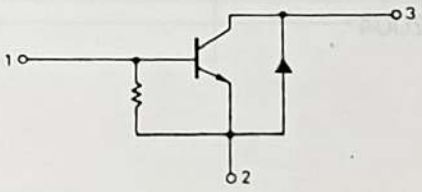
Triple diffusion mesa silicon NPN horizontal deflection output transistor.

High voltage transistor with built-in damper diode, as shown in equivalent circuit, manufactured by a special process.

Configuration



Equivalent circuit



1. Base 2. Emitter 3. Collector (case)

AFC

The output at pin 5 of FBT T502 driven by horizontal output transistor TR591 is fed back to pin 16 of IC401 and the phase difference between this output and horizontal sync. signal is detected by AFC IC401 and output at pin 1.

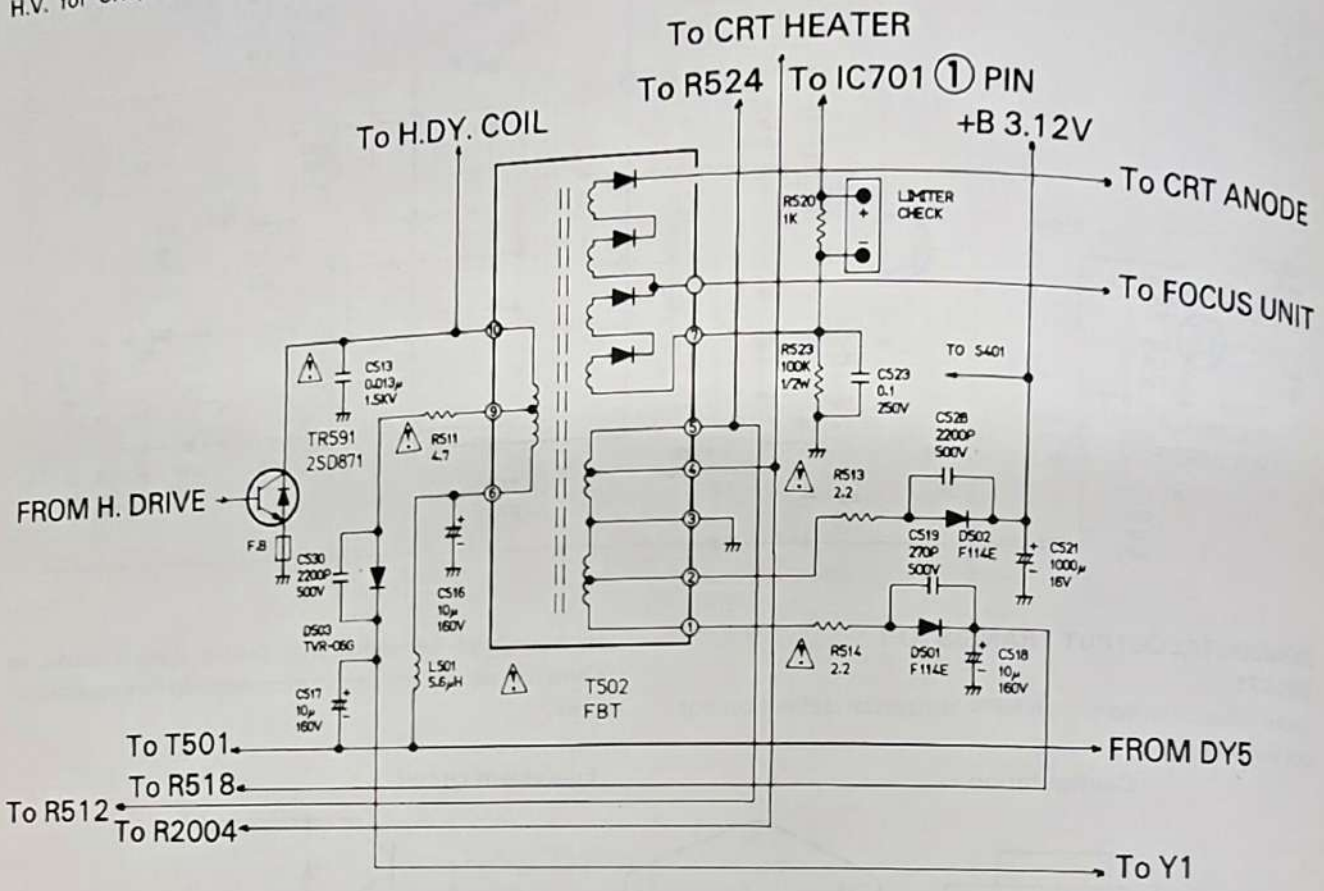
This output is smoothed by the circuit consisting of C503, C502 and R503 and applied to pin 2 via R502.
This signal is converted into horizontal sync. signal by circuit consisting of resistors, capacitors and horizontal hold control VR501 connected to pin 2.

6. SECONDARY SUPPLY VOLTAGES

FBT T502 is driven by the horizontal output transistor TR591 and the following supply voltages are obtained:

H.V. for CRT, Focus and Screen voltages for CRT, approx. +180V DC (B1) from D503, approx. +53V DC from D501 and approx. +12V DC (B3) from D502

Heater pulses are fed from pin 4 of T502 to the CRT heater which is a quick heat type.



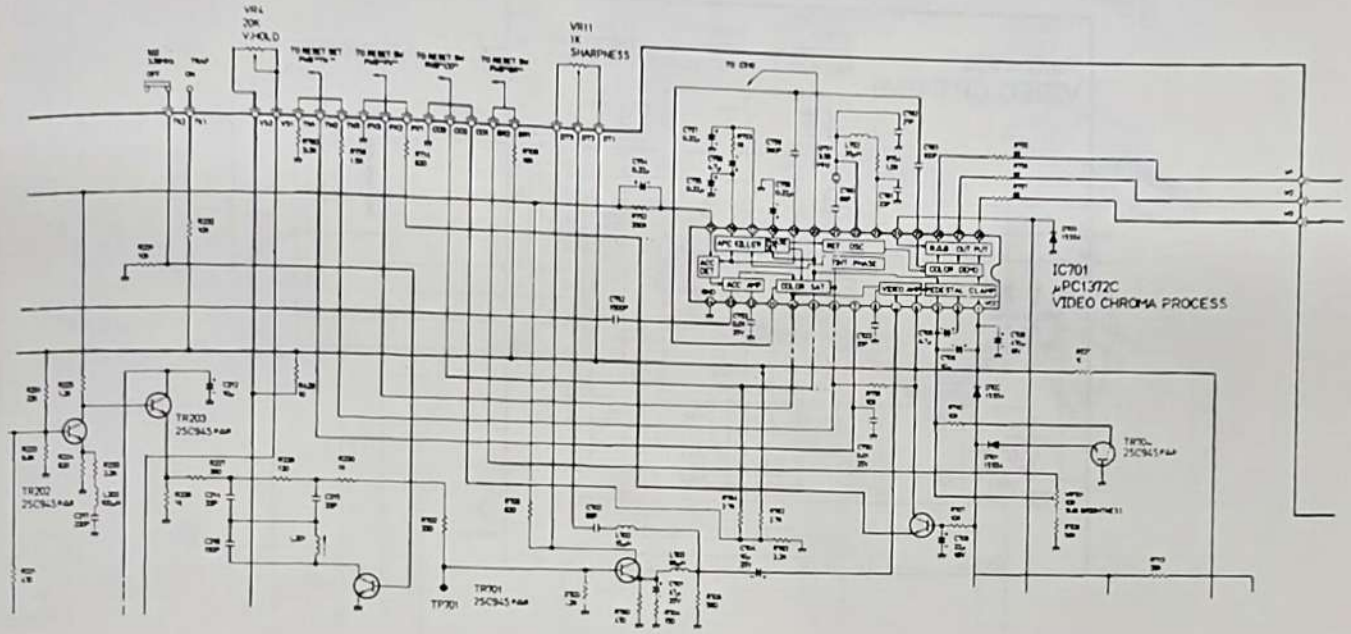
7. LUMINANCE AND CHROMINANCE

The video signal separated from picture signal by the comb filter is applied to pin 5 of IC701 via TR12, TR13, TR202, TR203, 3.58 MHz filter turned ON/OFF by TR702, TP701, TR701, sharpness control and its peripheral circuits.

The chroma signal separated by the comb filter is applied to pin 13 of IC701 via TR14 and band pass network consisting of C751, L751 and C752.

Whole luminance and chroma processing control is carried out by IC701.

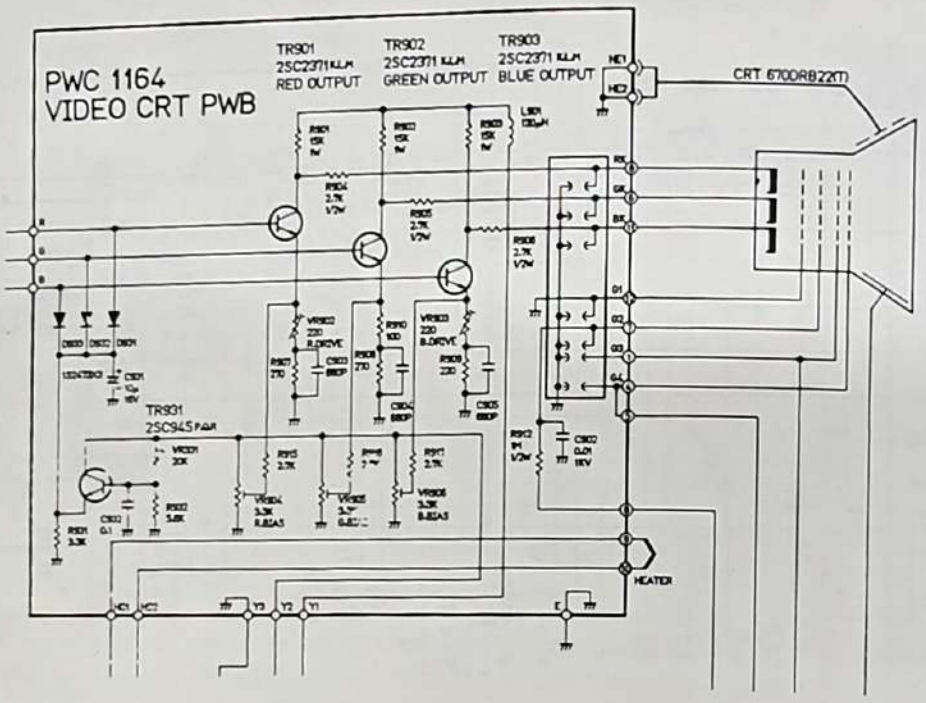
The R, G and B output signals (at pins 26, 27 and 28 of IC701) are fed to the next stage consisting of TR901, TR902 and TR903 to drive CRT.



8. VIDEO OUTPUT

The video CRT board (PWC-1164) is a collection point for the voltages and signals required to operate the CRT. The board contains three bias controls; RED bias (VR904), GREEN bias (VR905) and BLUE bias (VR906), and two drive controls; RED drive (VR902), BLUE drive (VR903) and PEAK WHITE LIMITER Control (VR931).

The RED, GREEN and BLUE signals are directly coupled from MATRIX output of IC701 on main PWB (PWC-1374) and luminance signal also on IC701.



9. HIGH VOLTAGE PROTECTION

This circuit is designed to prevent harmful X-Ray radiation being emitted form the CRT due to excessive H.V. voltage. It also provides additional protection for the monitor should failure occur in the power supply or horizontal output stage.

Should it be needed to defeat the high voltage protection for servicing purpose it is essential the monitor is not released until the high voltage protection is placed back into operation and tested.

Operation:

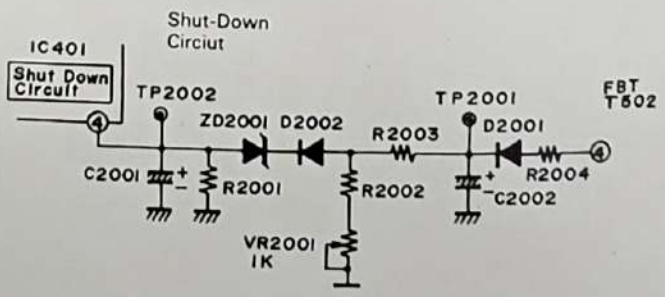
D2003 and C2002 rectify and smooth the line pulses from the FBT and this potential is divided by R2002, VR2001 and R2003, the resultant being applied to the cathode of ZD2001.

This voltage is normally about 21V. If the H.V. should rise for any reason the voltage increases and if the H.V. rise is excessive ZD2001 reaches its zener point and conducts (the time constant of C2001 and R2001 is designed to prevent inadvertent operation). IC401 is triggered shutting down the horizontal drive and the horizontal output collapses with all derived voltages. This state will remain until the monitor is switched off for at least 10 seconds to allow the shutdown circuit to recover.

Should the fault condition remain the high voltage protector will again activate upon switch on.

Troubleshooting:

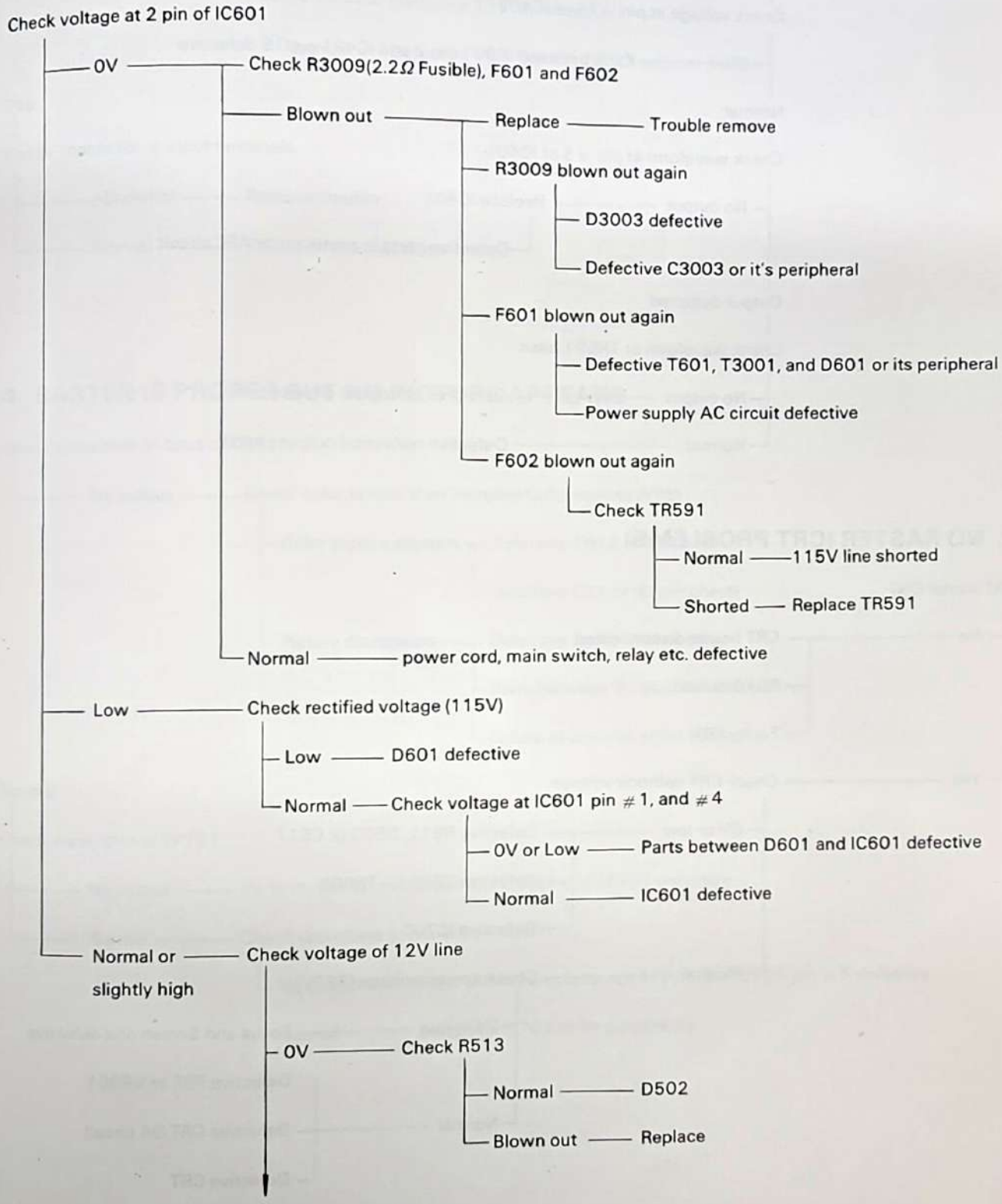
As the +B buss increases in voltage due to not being loaded when the horizontal output stage is inoperative, it may be difficult to determine if the high voltage protector is activating due to a fault in the power supply or elsewhere in the monitor. The protector may be defeated by ground TP2001 with a 1k, 1/2W resistor prior to switching the monitor on. The monitor should operate enabling voltage measurements.

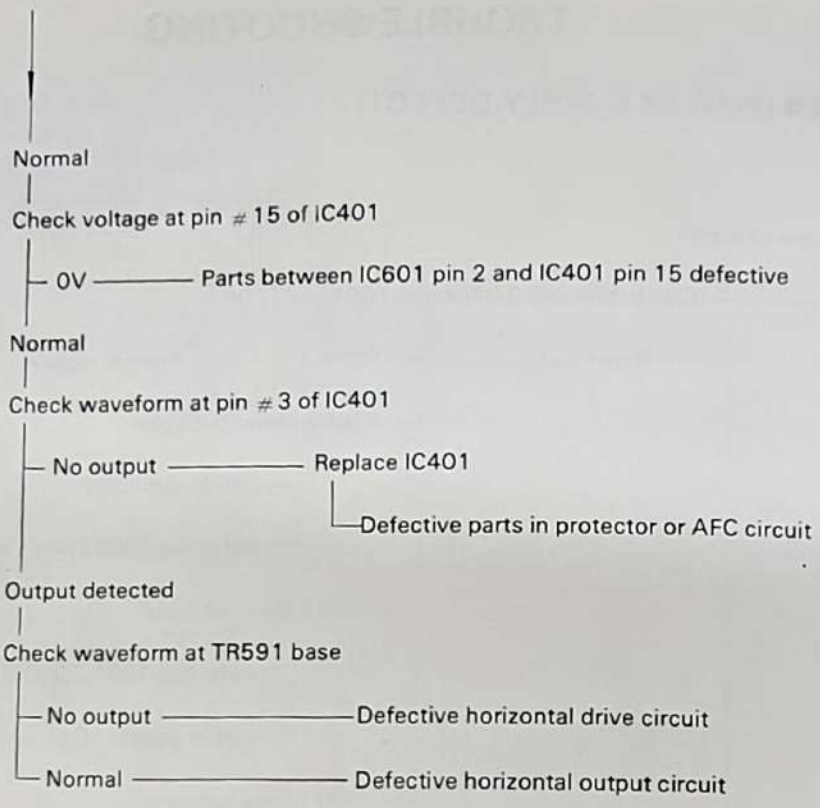


High Voltage Protection Circuit

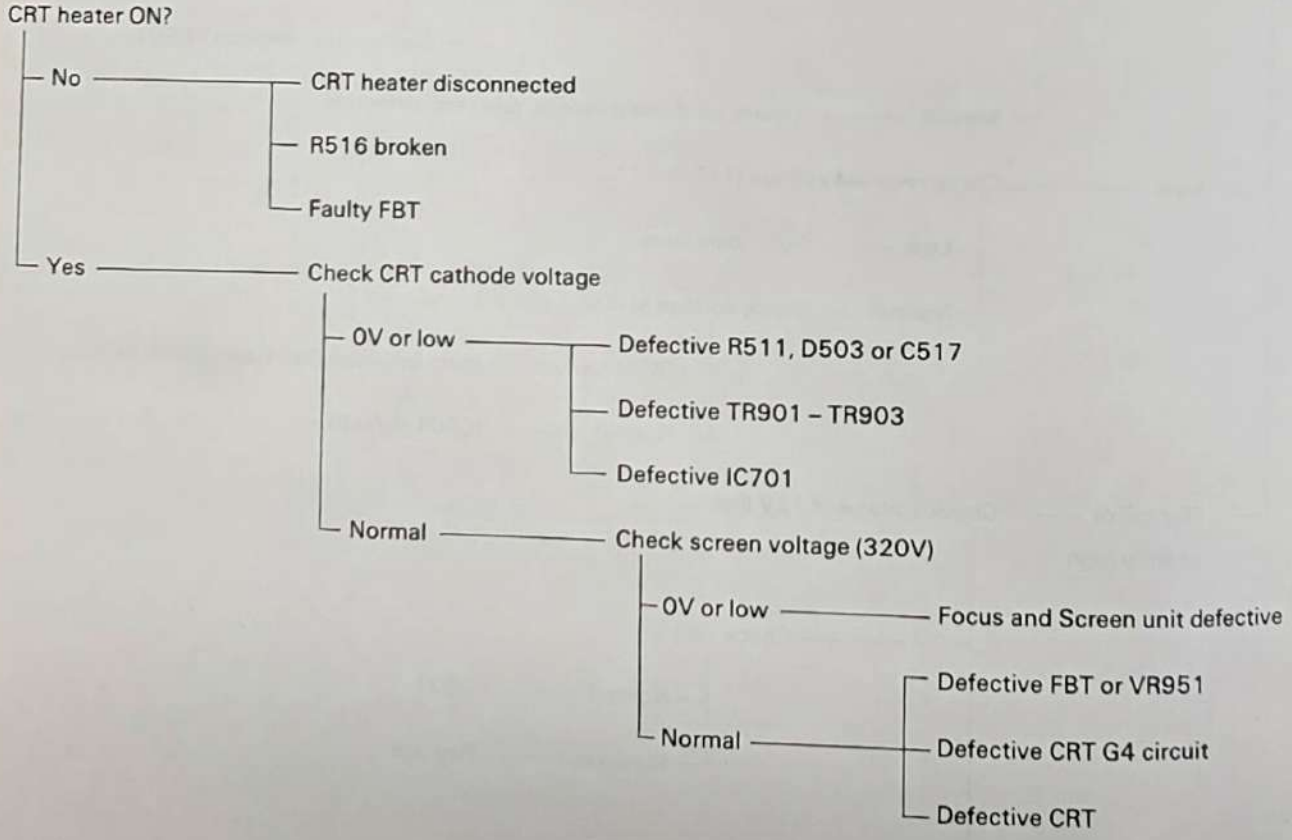
TROUBLE SHOOTING

1. NO RASTER (POWER SUPPLY DEFECT)





2. NO RASTER (CRT PROBLEMS)



Note: When checking the screen voltage, use a high impedance (100 MΩ) voltmeter.

3. NO PICTURE APPEARS THOUGH RASTER IS OPERATIVE

Is indicator light for power or video ON?

- No → Check voltage at T2 terminal
  - 0V → Defective 12V line circuit
  - Normal → Defective VIDEO/AUX VIDEO selector switch
- Yes → Check connector at input terminals
  - Abnormal → Remove trouble
  - Normal → Failure of external video

4. RASTER IS PROPER BUT NO PICTURE APPEARS

Check waveform at base of TR12

- No output → Check color screen then increase Color control (VR6)
  - Color picture appears
    - Defective TR12 or TR13
    - Defective C21 or its peripheral
  - Picture disappears
    - Defective comb filter circuit
    - Parts between V1 and TR11 defective
    - Failure of external video source
- Normal → Check waveform at TP701
  - No output → Parts connecting between TR12 base and TP701 defective
  - Normal → Check waveform at pin # 5 of IC701
    - No output → Parts connecting between TP701 and IC701 pin # 5 defective
    - Normal → Defective IC701 or its peripherals

5. NO PICTURE ON ADDITIONAL MONITOR

Check waveform at TR9 emitter

- Normal → Defective parts between V4 and TR9 emitter
- No output → Check voltage at TR16 base
  - 0V → Defective R70
    - Defective TR15, TR16, and their peripherals
  - Normal → Check voltage at TR15 base
    - 0V → Defective R75, R76, and C40
    - Normal → Defective C16

6. HORIZONTAL AND VERTICAL HOLD FAILURE

Check waveform at TP31

- No output → Defective R221 or C213
- Normal → Check waveform at pin # 14 of IC401
  - No output → Parts connecting between TP31 and IC401 pin # 14 defective
  - Normal → Defective IC401

7. NO VERTICAL SYNC, BUT HORIZONTAL HOLD NORMAL

Check frequence variation while turning Vertical Hold control VR4

- Lack of vertical sync → Defective IC401
- Oscillation frequency shift → Defective C401 or C404

8. NO HORIZONTAL SYNC, BUT VERTICAL HOLD NORMAL

Check Frequency variation ,while turning Horizontal Hold control VR501

- Lack of horizontal sync → Defective IC401
- Oscillation frequency shift → Defective C504 or IC401
- Oscillation frequency shift → Faulty AFC circuit

9. NO VERTICAL SWEEP OR VERTICAL HEIGHT

Check waveform at pin # 6 of IC401

- Nothing appears → Check waveform at pin # 10 of IC401
  - No output → Defective IC401 and its peripherals
  - Normal → Defective IC401
- Normal → Check voltage at TR401 collector
  - Abnormal → Check voltage at D501
    - Abnormal → Defective D501 or R514
    - Normal → Defective R524, D403, and D404
  - Normal → Defective VR401 and its peripherals
  - Normal → Defective vertical deflection yoke

10. ABNORMAL BRIGHTNESS ON SCREEN

Check CRT cathode voltage

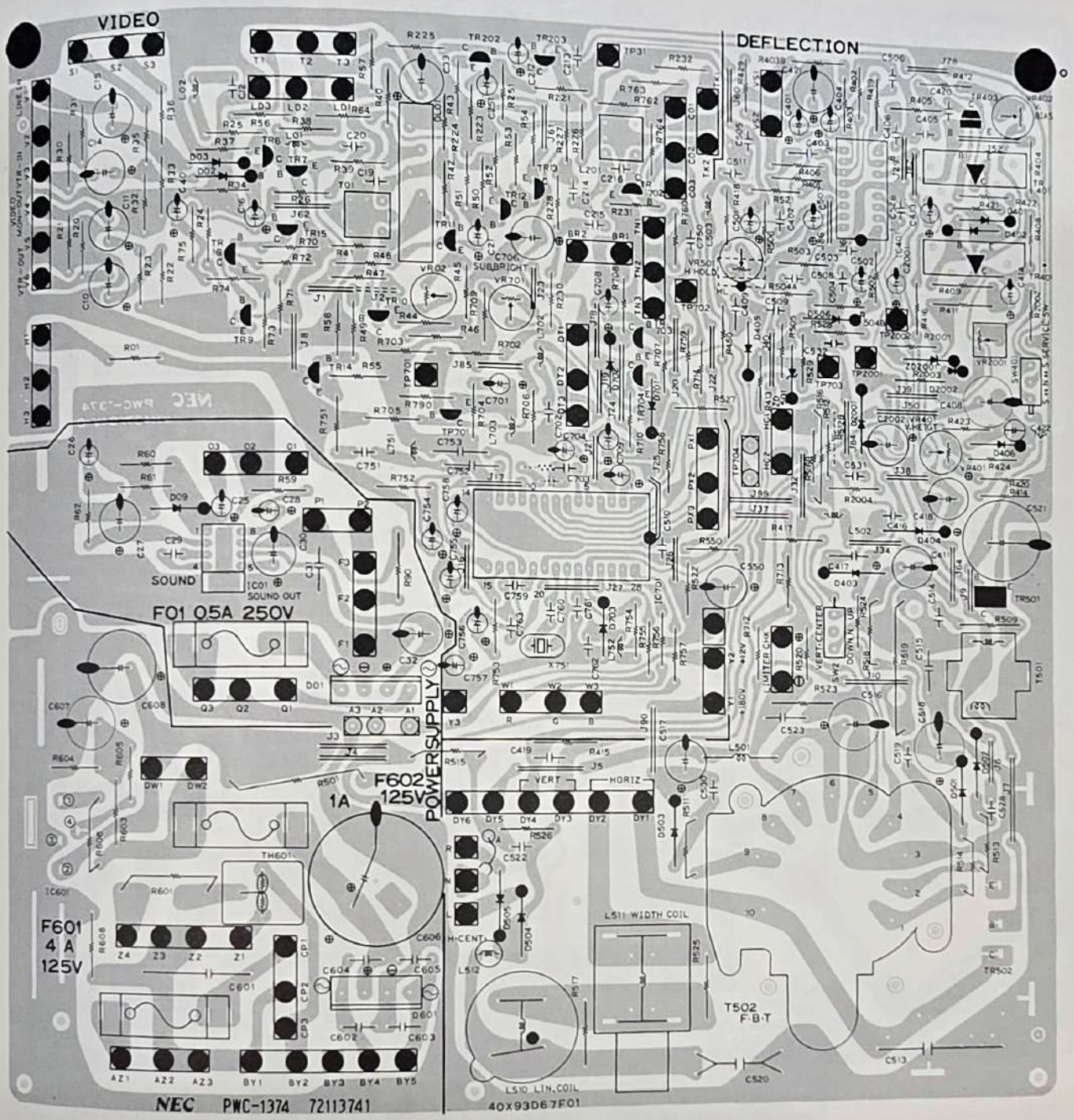
- 0V → Defective R511, D503, or L901
- 0V → Defective power circuit for video output
- Low → Check voltage at TR931
  - Normal → Defective for video output
  - Abnormal → Defective R550 or its peripheral
- Normal → Check voltage at pin # 3 of IC701
  - Low → Defective parts between pin # 1 and # 3 of IC701
  - Low → Defective IC701
  - Normal → Defective IC701

11. ABNORMAL GRAY SCALE (WHITE BALANCE)

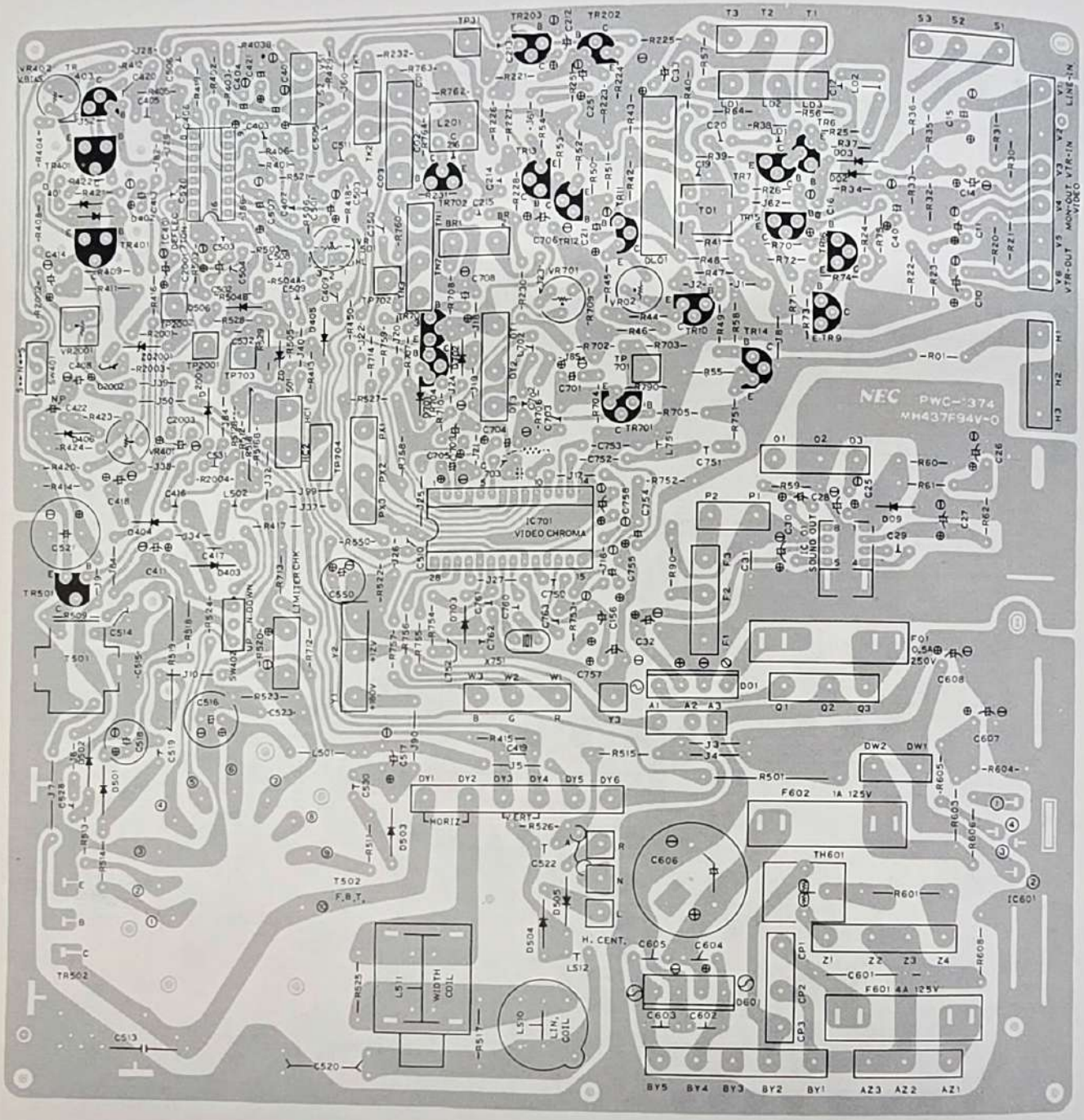
- Re-adjust gray scale
  - Proper gray scale restored
  - Abnormal gray scale remains
    - Check CRT cathode voltage (160V)
      - Abnormal
        - Defective IC701
        - Defective components peripheral to IC701
        - Defective chroma output circuit
      - Normal
        - Defective CRT
        - Defective spark gap

PWB ASS'Y MAIN PWB (PWC-1374)

-Component Side-

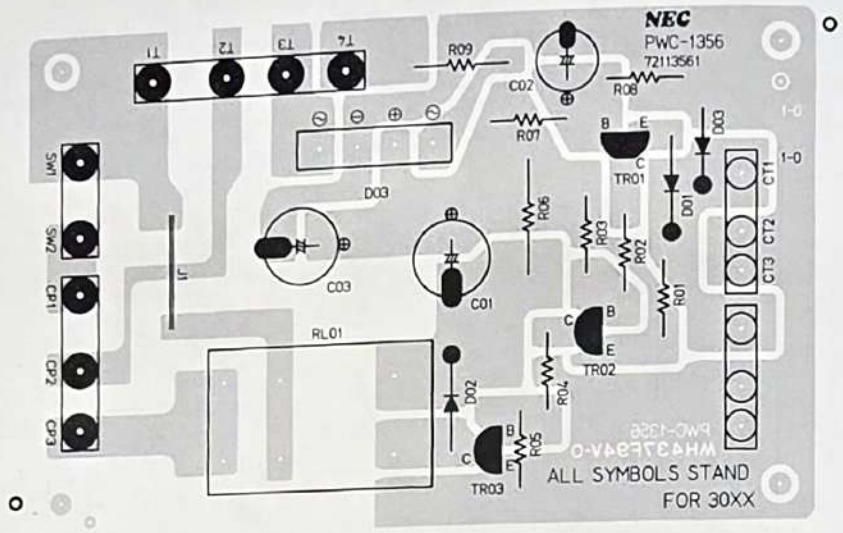


–Solder Side–


NEC PWC-374
MH437F94V-0
IC701
VIDEO CHROMA
IC601
SOUND OUT
WIDTH COIL
LIN. COIL
H. CENT.
F.B.T.
HORIZ
VERT
LIMITER CHK
H-DOWN
F602 1A 125V
F601 4A 125V
F601 0.5A 250V
TH601

RCC CONTROL PWB (PWC-1356)

–Component Side–



–Solder Side–

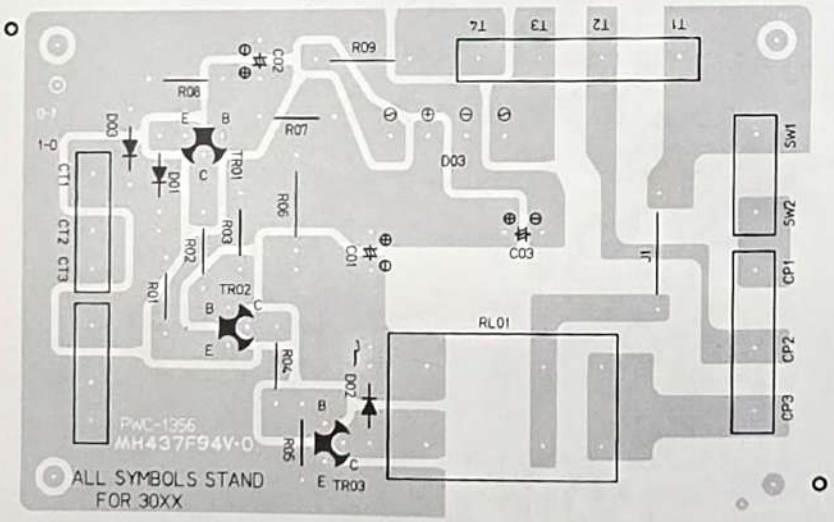


TABLE 1. TRANSISTOR VOLTAGE CHART

SYMBOL #	TRANSISTOR TYPE	CIRCUIT	VOLTAGE		
			EMITTER	BASE	COLLECTOR
TR06	2SC945 P.Q.R.	Video Amp.	3.1	3.8	8.2
TR07	2SC945 P.Q.R.	DL. Drive	7.5	8.2	11.3
TR10	2SC945 Q.R.	Comb. Filter	2.3	3.0	6.8
TR11	2SC945 Q.R.	Comb. Filter	2.3	3.0	7.1
TR12	2SC945 P.Q.R.	Video Amp.	2.3	3.0	6.4
TR13	2SC945 P.Q.R.	Video Buffer	4.7	6.4	11.8
TR14	2SC945 P.Q.R.	Chroma Buffer	3.9	4.6	11.3
TR202	2SC945 P.Q.R.	Video Buffer	3.1	3.8	7.4
TR203	2SC945 P.Q.R.	Video Amp.	6.7	7.4	13.0
TR401	2SD401	Vert. Out	31.9	32.1	78.4
TR402	2SB546	Vert. Out	31.1	31.3	31.9
TR403	2SC1941	Vert. Out	0	0.6	31.3
TR501	2SC2688 K.L.M.	Hori.Drive	0	0.4	39.0
TR591	2SD871	Hori. Out	0	0	115.0
TR701	2SC945 P.Q.R.	Sharpness Drive	2.3	3.0	7.2
TR702	2SC945 P.Q.R.	3.58 MHz Trap	ON 0 OFF 0	0.6 0	0.2 0
TR703	2SC945 P.Q.R.	Contrast limiter	8.7	9.4	11.8
TR704	2SC945 P.Q.R.	Auto Brightness	0	0	6
TR901	2SC2371 K.L.M.	Red Out	1.7	1.8	124.0
TR902	2SC2371 K.L.M.	Green Out	1.5	1.8	136.0
TR903	2SC2371 K.L.M.	Blue Out	1.5	1.8	130.0
TR931	2SC945 P.Q.R.	Peak Gray Limiter	5.0	5.5	11.7
TR3001	2SC945	R.C.C. Dete.	0.8	1.5	0.8
TR3002	2SA733	R.C.C. Dete.	20.5	19.8	20.4
TR3003	2SD471	Relay Drive	0	0.8	ON 0.2 OFF 20

TABLE 2. IC VOLTAGE CHART

SYM-BOL	IC TYPE	CIR-CUIT	VOLTAGE															
			PIN 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC401	LA7800	SYNC. H.V. OSC H.V. PROTEC-TOR	6.5v	6.5	0.4	0.006 0.020	GND	0.6	3.3	0.3	0.4	5.9	–0.7	11.6	1.2	9.4	12.5	4.2
IC601	STR -371	POWER REGULA-TOR	PIN 1	2	3	4												
			130	115	GND	116												
IC701	μPC -1372C	VIDEO & CHROMA PRO-CESS	PIN 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
			11.8V	8.6	8.5	11.8	3.0	2.4	3.6	5.8	3.8	8.0	8.6	1.9	1.2	GND	8.6	
			PIN 16	17	18	19	20	21	22	23	24	25	26	27	28			
			8.6	8.7	9.8	4.3	0.5	8.1	3.2	3.2	0.4	2.8	2.6	2.6	2.8			

Note: Voltage measured under average color signal input and contrast control, Brightness control at maximum, all other controls set for normal operation.

REPLACEMENT PARTS LIST

Note: The components identified by ⚠ mark or with the symbol Nos. shaded are critical for safety. Replace only with parts Number specified.

SYMBOL	PARTS NO	DESCRIPTION	QTY
**** CRT & TUNER ****			
⚠	33025033	CRT-670DRB22-TC04(T)	1
**** ICS ****			
IC701	37003020	IC MPC1372C (CHR)	1
IC601	37005013	IC STR371 (REG)	1
IC401	37009013	IC LA7800 (SYNC)	1
**** TRANSISTORS ****			
TR3002	35003517	TR,2SA733/733A Q	1
TR402	35025212	TR 2SB546/546 AL	1
TR3001 TR931	35047217	TR,2SC945Q	2
TR06 TR07 TR10	35047218	TR,2SC945 R	13
TR11 TR12 TR13			
TR14 TR202 TR203			
TR701 TR702 TR703			
TR704			
TR403	35053012	TR,2SC1941 L	1
TR901 TR902 TR903	35053812	TR,2SC2371 (8) L	3
TR501	35056312	TR,2SC2688 L	1
TR401	35063412	TR,2SD401/401A L	1
TR3003	35063512	TR 2SD471 (1) L	1
TR591	35066700	TR,2SD871	1
**** DIODES ****			
D931 D932 D933	36001009	DIODE,SI.1S-2473	3
D3001 D3002 D3004	36001015	DIODE,SI 1SS54	3
ZD501	36003039	DIODE,ZENER RD12EB	1
ZD2001	36003143	DIODE RD8.2JB(1)	1
D02 D03	360K1009	DIODE,SI.1S2473	2
D10 D401 D402	360K1015	DIODE,SI.1SS54	8
D405 D506 D701			
D702 D703			
D406	360K2023	DIODE 1K34A	1
D403	36107086	RECTIFIER,SI.1SR35-400	1
D501 D502	36107263	RECTIFIER,SI.F114E	2
D601	36108002	DIODE BRIDGE,RB-154	1
D3003	36108003	DIODE BRIDGE,RB-150	1

SYMBOL	PARTS NO	DESCRIPTION	QTY
**** DIODES ****			
D2001 D404 D503	361K7160	RECTIFIER,SI.TVR-06G	5
D504 D505			
LD01	36801045	DIODE LIGHT-E SR535D	1
LD02 LD03	36801046	DIODE LIGHT-E SR235D	2
D2002	38005011	VARISTER,VD1220	1
TH601	38112015	THERMISTOR,POSITIVE	1
**** TRANSFORMERS ****			
T691	45015105	TRANS,POWER	1
T601	45029103	TRANS,POWER	1
T501	45803001	TRANS,H.DRIVE	1
T502	47105145	F.B.T	1
**** VARIABLE RESISTORS ****			
VR7	41053004	R,VARIABLE 10K	1
VR13 VR4 VR6	41053014	R,VARIABLE 20K	3
VR1	41053051	R,VARIABLE 10K 0.1W	1
VR11	41053054	R,VARIABLE 1K 0.1W	1
VR16	41057005	R VARIABLE 1K 0.2W	1
VR591	41057006	R,VARIABLE 5K 0.1W	1
VR18 VR78	41057022	R,VARIABLE 10K 0.1W	2
VR138 VR68	41057023	R,VARIABLE 20K 0.2W	2
VR401	41061503	R,VARIABLE 220H 0.15W	1
VR02	41061505	R,VARIABLE 470H 0.15W	1
VR701	41061513	R,VARIABLE 10K 0.15W	1
VR402	41061516	R,VARIABLE 47K 0.15W	1
VR931	41067010	R,VARIABLE 20K 0.1W	1
VR902 VR903	41067202	R,VARIABLE 220H 0.1W	2
VR904 VR905 VR906	41067207	R,VARIABLE 3.3K 0.1W	3
VR2001	41505004	R,VARABLE 1K	1
**** SWITCHES ****			
SW01 SW02	65113013	SWITCH,SLIDE	2
S601	65313111	SWITCH,PUSH BUTTON	1

SYMBOL	PARTS NO	DESCRIPTION	QTY

** SWITCHES **

S3092 SW3091	65314041	SWITH PUSH BUTTON	2
RLY01	65602021	RELAY G4W-1112P-US-TV8-P	1

** PWB ASSY **

	93D67G01	VIDEO CRT PWB ASSY	1
	93E14F02	MAIN PWB ASSY	1
	93E14K01	CT-SW PWB ASSY	1
	93E14R01	LED PWB ASSY	1
	93E14U02	POWER CTL PWB ASSY	1
	93E14Z01	PRE-SET SW PWB ASSY	1

** MISCELLANEOUS PARTS **

VR591	39603201	FOCUS,SCREEN UNIT	1
Q751	64003011	X-TAL 3.579MHZ	1
SW401 SW402	66099003	LEVER SWITCH	2
F602	66651401	FUSE 1A T 125V UL 30MM	1
F601	66651403	FUSE 4A T 125V UL 30MM	1
⚠	70032222	SG/CRT SOCKET	1
	70101015	SOCKET,TR	1
	70101024	SOCKET,TR	1
	70102002	SOCKET,IC 16PIN	1
	70102010	SOCKET,IC 28PIN	1
	70505012	JACK,EARPHONE	1
⚠	70521019	AC OUTLET	1
	70541021	OCTAL PIN (A)	87
	70599075	JACK PHONO	3
	70799042	CABLE	1
	70799043	CABLE	1
	71205036	HOLDER,FUSE	4
⚠	75516004	LINE CORD SPT-2 BLACK	1

** CABINET & KNOBS **

	24362742	CABINET	1
	24439301	HAND POUCH	2
	24439311	COVER,PIX NECK	1
	24469061	BUTTON,PUSH	1

SYMBOL	PARTS NO	DESCRIPTION	QTY

** CABINET & KNOBS **

	24469071	BUTTON,PUSH A	2
	24469081	KNOB CONTROL	6

** COILS & FILTERS **

L201		60351003	COIL,TRAP 5.5MHZ	1
T01		60565014	COIL D,L	1
L511		60908017	WIDTH COIL	1
L510		60917030	COIL,H.LIN	1
L501		61005004	COIL,FILTER 5.6UH	1
L702	L751	61013015	COIL,FILTER 15UH	2
L703		61013023	COIL,FILTER 68UH	1
L702		61051529	COIL,FILTER 100UH	1
L901		61051530	COIL,FILTER 120UH	1
L502		61064006	COIL FILTER 5500UH	1
L503	L512	61064055	COIL,FILTER 4.7UH	2
L752		610E1723	COIL,FILTER 33UHA,T(S)	1
L01		610E1727	COIL,FILTER 68UHA,T(S)	1
L02		610E1730	COIL,FILTER 120UHA,T(S)	1
	⚠	61326101	COIL,DEGAUSSING	1
DL01		61511051	DELAY LINE	1
		61605005	FERRITE BEAD	1

** PACKING MATERILS **

	24826522	CARTON BOX	1
	24826531	FILLER CARTON	1
	24826541	FILLER CARTON	1
	24827521	FILLER CARTON	2
	78050621	OWNERS MANUAL	1

** RESISTORS **

R409			*	R,SOLID 820H 10% 1/2W	1
R517			*	R,SOLID 1.0K 10% 1/2W	1
R415			*	R,SOLID 1.8K 10% 1/2W	1
R411			*	R,SOLID 2.2K 10% 1/2W	1
R904	R905	R906	*	R,SOLID 2.7K 10% 1/2W	3

SYMBOL			PARTS NO	DESCRIPTION	QTY
** RESISTORS **					
R603			40003051	R,SOLID 15K 10% 1/2W	1
R912			40023073	R,SOLID 1.0M 10% 1/2W	1
R608			40023253	R,SOLID 2.2M 5% 1/2W	1
R525			400K3537	R,SOLID 1.0K 10% 1/2W	1
R417	R509		400K3545	R,SOLID 4.7K 10% 1/2W	2
R523			400K3561	R,SOLID 100K 10% 1/2W	1
R421			*	R,CARBON 3.3H 5% 1/3W	1
R422			*	R,CARBON 18H 5% 1/3W	1
R755	R756	R757	*	R,CARBON 68H 5% 1/3W	3
R910			*	R,CARBON 100H 5% 1/3W	1
R907	R908	R909	*	R,CARBON 270H 5% 1/3W	3
R548			*	R,CARBON 390H 5% 1/3W	1
R54			*	R,CARBON 1.8K 5% 1/3W	1
R915	R916	R917	*	R,CARBON 2.7K 5% 1/3W	3
R504C	R931		*	R,CARBON 3.3K 5% 1/3W	2
R932			*	R,CARBON 5.6K 5% 1/3W	1
R506			*	R,CARBON 220K 5% 1/3W	1
R3004			*	R,CARBON 2.2K 5% 1/4W	1
R3008			*	R,CARBON 4.7K 5% 1/4W	1
R3002	R3005	R3007	*	R,CARBON 10K 5% 1/4W	3
R3001	R3003		*	R,CARBON 47K 5% 1/4W	2
R30	R63		*	R,CARBON 75H 5% 1/4W	2
R64			*	R,CARBON 1.0K 5% 1/4W	1
R233			*	R,CARBON 2.2K 5% 1/4W	1
R408			*	R,CARBON 3.3H 5% 1/4W	1
R605			*	R,CARBON 1.0K 5% 1/4W	1
R524			*	R,CARBON 2.2H 5% 1/2W	1
R414			*	R,CARBON 6.8H 5% 1/4W	1
R39			*	R,CARBON 47H 5% 1/4W	1
R751			*	R,CARBON 100H 5% 1/4W	1
R228	R420		*	R,CARBON 120H 5% 1/4W	2
R704			*	R,CARBON 150H 5% 1/4W	1
R424			*	R,CARBON 220H 5% 1/4W	1
R416	R44	R45	*	R,CARBON 330H 5%1/4W	5
R528	R702				
R227			*	R,CARBON 390H 5% 1/4W	1
R221	R790		*	R,CARBON 470H 5% 1/4W	2
R42	R47	R48	*	R,CARBON 560H 5% 1/4W	4
R706					
R26	R52		*	R,CARBON 680H 5% 1/4W	2
R2002	R224	R418	*	R,CARBON 820H 5% 1/4W	5

SYMBOL			PARTS NO	DESCRIPTION	QTY
** RESISTORS **					
R705	R714		*	R,CARBON 820H 5% 1/4W	5
R226	R230	R37	*	R,CARBON 1.0K 5% 1/4W	7
R404	R423	R520			
R753					
R01	R225	R504B	*	R,CARBON 1.2K 5% 1/4W	6
R56	R57	R703			
R38	R406	R46	*	R,CARBON 1.5K 5% 1/4W	6
R53	R754	R759			
R25	R403B		*	R,CARBON 1.8K 5% 1/4W	2
R2003	R40	R55	*	R,CARBON 2.2K 5% 1/4W	5
R762	R763				
R34	R764		*	R,CARBON 2.7K 5% 1/4W	2
R505	R760		*	R,CARBON 3.3K 5% 1/4W	2
R35	R36	R521	*	R,CARBON 4.7K 5% 1/4W	3
R223	R43	R503	*	R,CARBON 6.8K 5% 1/4W	3
R2001	R231	R232	*	R,CARBON 10K 5% 1/4W	11
R31	R51	R522			
R529	R58	R707			
R710	R758				
R401	R504A		*	R,CARBON 12K 5% 1/4W	2
R412	R49		*	R,CARBON 15K 5% 1/4W	2
R41	R708		*	R,CARBON 18K 5% 1/4W	2
R251	R32	R33	*	R,CARBON 22K 5% 1/4W	6
R403	R512B	R526			
R419	R50		*	R,CARBON 27K 5% 1/4W	2
R502			*	R,CARBON 33K 5% 1/4W	1
R713			*	R,CARBON 39K 5%	1
R712			*	R,CARBON 47K 5% 1/4W	1
R709			*	R,CARBON 56K 5%1/4W	1
R405			*	R,CARBON 120K 5% 1/4W	1
R402			*	R,CARBON 220K 5% 1/4W	1
R604	R752		*	R,CARBON 330K 5% 1/4W	2
R607			40215310	R,WIRE 150H 5% 20W	1
R606			40351109	R,METAL 2.2H 5% 1W	1
R518			40351133	R,METAL 22H 5% 1W	1
R3006			40351153	R,METAL 150H 5% 1W	1
R515			40351161	R,METAL 330H 5% 1W	1
R901	R902	R903	40351201	R,METAL 15K 5% 1W	3
R516			40352111	R,METAL 2.7H 5% 2W	1
R601			40352153	R,METAL 150H 5% 2W	1
R519			40353189	R,METAL 4.7K 5% 3W	1
R501			40353195	R,METAL 8.2K 5% 3W	1

* These parts are listed for reference only;
They will not be supplied by denser.

SYMBOL	PARTS NO	DESCRIPTION	QTY
**** RESISTORS ****			
R2004 R3009 R513	40405109	R/METAL 2.2H 5% 1/4W	4
R514			
R511	40405117	R/METAL 4.7H 5% 1/4W	1
R429 R527 R550	40405125	R/METAL 10H 5% 1/4W	4
R64			
**** CAPACITORS ****			
C902	42022113	C/CERAMIC 1KV 1000PF	1
C420	4203J551	C/CERAMIC 500V 100PF	1
C519	4203J556	C/CERAMIC 500V 270PF	1
C531	4203J563	C/CERAMIC 50V 1000PF	1
C419 C515	4203J575	C/CERAMIC 500V 0.01UF	2
C602 C603 C604	42099061	C/CERAMIC 160V 4700PF	4
C605			
C19 C750	4208B525	C/CERAMIC 50V 0.01UF	2
C514	420C9560	C/CERAMIC 500V 560PF	1
C522 C528 C530	420C9567	C/CERAMIC 500V 2200PF	3
C903 C904	4213K211	C/CERAMIC 50V 680PF	2
C905	4213K212	C/CERAMIC 50V 820PF	1
C416	4213K217	C/CERMIC 50V 2200PF	1
C932	4219J002	C/CERAMIC 50V 0.1UF	1
C759	421C0208	C/CERMIC 50V 390PF	1
C510 C511	421C0213	C/CERAMIC 50V 1000PF	2
C752	421C1015	C/CERAMIC 25V 1500PF	1
C753	421C1025	C/CERAMIC 25V 0.01UF	1
C217	4231A053	C/CERAMIC 50V 220PF	1
C762	4231B067	C/CERAMIC 50V 27PF	1
C703	4231B069	C/CERAMIC 50V 33PF	1
C216	4231B102	C/CERAMIC 50V 150PF	1
C213	423A1051	C/CERAMIC 50V 180PF	1
C505	423A1101	C/CERAMIC 50V 470PF	1
C751	423A2045	C/CERAMIC 50V 100PF	1
C761	423A2065	C/CERAMIC 50V 22PF	1
C12 C20 C214	423A2069	C/CERAMIC 50V 33PF	4
C215			
C702 C760	423A2077	C/CERAMIC 50V 68PF	2
C763	423A6084	C/CERAMIC 50V 100PF	1
C417	42703568	C.FILM 200V 0.027UF	1
C403	42754073	C/FILM 50V 0.068UF	1
C506	42750011	C/FILM 50V 0.047UF	1

SYMBOL	PARTS NO	DESCRIPTION	QTY
**** CAPACITORS ****			
C22	42750055	C/FILM 50V 2200PF	1
C406	42750070	C/FILM 50V 0.039UF	1
C409	42750072	C/FILM 50V 0.056UF	1
C405	42750075	C/FILM 50V 0.1UF	1
C504	42799058	C.FILM 100V 5600 PF	1
C402 C503	427E6007	C/FILM 50V 0.01UF	2
C508 C509	427E6009	C/FILM 50V 0.022UF	2
C526	427E6055	C/FILM 50V 2200PF	1
C532 C533	427E6059	C/FILM 50V 4700PF	2
C601	42801025	C/METAL FILM 125V 0.1UF	1
C513	42807028	C/METAL 1600V 0.013UF	1
C523	42839022	C/METAL FILM 250V 0.1UF	1
C520	42899007	C/METAL FILM 400V 0.47UF	1
C521	4301A036	C/ELEC 16V 1000UF	1
C3002 C931	4301J025	C/ELEC 16V 10UF	2
C33 C421 C550	4301J032	C/ELEC 16V 470UF	4
C706			
C16	4301J038	C/ELEC 25V 10UF	1
C3003	4301J042	C/ELEC 25V 100UF	1
C3001	4301J043	C.ELEC 25V 220UF	1
C408	4301J071	C/ELEC 50V 330UF	1
C411	4301J086	C/ELEC 63V 100UF	1
C414	4302C106	C.ELEC 50V 10UF	1
C607	43099003	C/ELEC 160V 10UF	1
C608	43099004	C/ELEC 160V 22UF	1
C2001	43099028	C/ELEC 16V 47UF	1
C14 C15	4309J008	C/ELEC 16V 100UF	2
C516 C517 C518	4309J040	C.ELEC 160V 10UF	3
C418	4309J056	C ELEC160V 2.2UF	1
C754 C755 C757	430A4101	C/ELEC 50V 0.22UF	4
C758			
C502	430A4105	C/ELEC 50V 1UF	1
C507	430A5036	C/ELEC 16V 100UF	1
C708	430A9026	C.ELEC 16V 22UF	1
C2002 C212 C21	430A9038	C.ELEC 25V 10UF	6
C251 C704 C709			
C701	430A9041	C.ELEC 25V 47UF	1
C501	430A9063	C/ELEC 50V 3.3UF	1
C705 C756	430A9064	C/ELEC 50V 4.7UF	2
C606	43104076	C/ELEC 180V 470UF	1
C422	43313056	C.ELEC 50V2.2UF	1

SYMBOL	PARTS NO	DESCRIPTION	QTY
** CAPACITORS **			
C413	43515073	C,TANTALUM 35V 2.2UF	1
C404	43950084	C,TANTALUM 35V 0.1UF	1
C401	43950089	C,TANTALUM 35V 0.68UF	1

MEMO

JENSEN SOUND LABORATORIES
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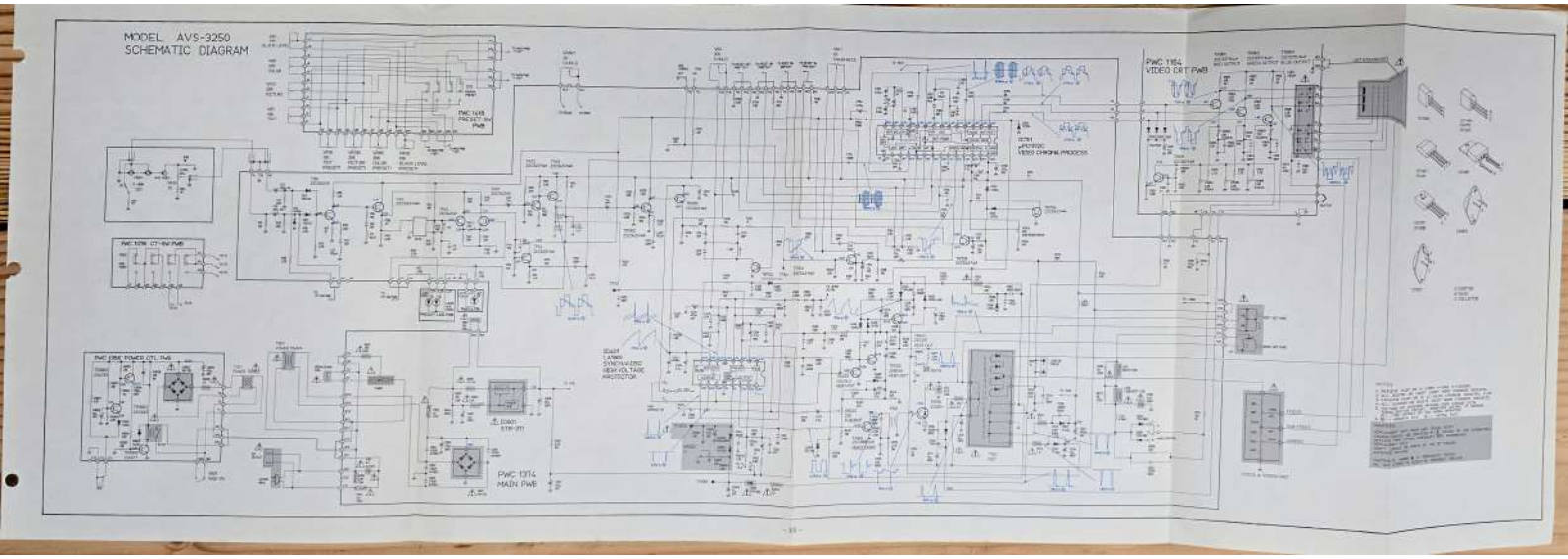
4136 North United Parkway
Schiller Park, Illinois 60176
(312) 671-5680

If you have any questions about operating or installation you can write or call Jensen toll free at (800) 323-0221. In Illinois call (312) 671-5680.


MODEL AVS-3250
SCHEMATIC DIAGRAM
PWC 1374
MAIN PWB
PWC 1354
VIDEO CRT PWB